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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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A Great Trade Fair

THE British Industries Fairs of 1928, which are to be held simultaneously in London and Birmingham from February 20 to March 2, promise every hope of being the most successful of the series. Although there will be exhibits of incidental interest to the metallurgical and chemical industries, the chemical exhibition proper will, as usual, be held in London. The arrangements are again in the capable hands of the Association of British Chemical Manufacturers; and the section promises to be more than usually representative of the main branches of chemical industry. To recall the character of previous chemical exhibitions is to realise to what a large extent chemically Great Britain has changed from an importing into a producing country. In the matter of dyestuffs, within the limits of one decade, the proportion of imports to exports (formerly about 20 per cent. to 80 per cent.) has been almost exactly reversed—a truly remarkable achievement. In fine chemicals, again, needs which we looked to foreign producers, mainly German, to supply almost automatically, can now largely be obtained from home manufacturers. With the advance in chemical engineering, both as a profession and as an industry, there has been greatly increased activity on the part of British plant manufacturers. In the field of synthetic fertilisers the progress has been so rapid, and on such a vast scale, that it is difficult to realise the greatness of the achievement. In the main branches of the heavy chemical industry the British predominance remains practically unchallenged, and its future position, if it changes at all, promises to be stronger rather than weaker. If the chemical section of the London Fair represents even approximately all that has been accomplished in recent years, it should well repay inspection.

If, as already suggested, the ambition for the future is to become more an exporting than an importing nation chemically, the Fair is an obvious means to this end. It brings potential buyers from all parts of the world, and apart from its immediate business results its publicity effects continue and penetrate important overseas markets. Some acknowledgment is due to those who in the early days induced chemical manufacturing interests to join in these collective efforts. It was not easy work to break down the isolation and conservatism in method that formerly existed. The work, however, has been well done. It needs to be maintained. With the same policy steadily pursued, with reasonable stability in industrial conditions at home, and with international peace assured, the improvement which chemical industry has recently experienced should be confirmed and extended over a considerable period to come.

Chemical Workers' Policy

THE preliminary agenda of the eleventh annual general meeting of the National Union of Drug and Chemical Workers, to be held in London on Easter Sunday and Monday, is a somewhat formidable document and contains abundant matter for discussion. Some of the notices of motion are of the general kind that one expects at annual conferences of trade union delegates. These include proposals to nationalise the medical services, and to observe standard wages and conditions in the manufacture and sale of drugs, etc.; to reopen negotiations and trade with Russia as a means of reducing unemployment; to demand more frequent and thorough Government inspection of drug and chemical works; to insist on the fair wage clause in all public contracts; to demand better wages and conditions in view of the "high technical skill and training demanded of pharmacists and industrial chemists"; to cultivate closer relations with foreign and colonial organisations of drug and chemical workers; and to call for State inspection of all public and private dispensaries.

These, however, are not likely to excite anything like the interest that attaches to the Union's attitude towards Imperial Chemical Industries' recently published Labour policy. The motions stand in the name of the National Executive Council, and their spirit is

frankly hostile. Whether the objections are put in, as they sometimes are in law, merely to make the field for negotiation as wide as possible or are intended to be seriously pressed, one cannot say in advance; but the I.C.I. policy is regarded as "fraught with manifold dangers," and as intended to eliminate all forms of trade unionism in the works and to isolate the workers from their trade organisations. Similarly, the National Executive treats with hostile suspicion the movement led by Sir Alfred Mond for industrial peace. What most alarms the National Executive is obviously the policy of "rationalisation." A new term sometimes carries with it unknown terrors that have little real substance, and it seems possible that that may be the case here. "Rationalisation," after all, is but a general term for collective efficiency, for avoidance of waste, for the most economical production and distribution (quite a different thing from mere "cheapness," which may be anything but economical). In safeguarding its own rights, Labour must be careful not to ally itself with or to defend inefficiency, for in the end it would suffer most. Increased and better production means increased consumption; that, in turn, means more, not less, employment, and more, not less, benefit to the consumer. "Rationalisation," rightly worked, should be for the ultimate benefit of the community, and Labour in the long run will gain more from contributing to the increased service of the community than from rigid insistence on rules and restrictions that are merely negative. Protection of rights, by all means; but no unbending opposition to progress and no blank resistance to new ideas merely because they are unfamiliar.

Less contentious in character is the demand for stringent State regulations for works wherein celluloid products are made, with detailed suggestions for limiting employees to persons of eighteen years and upwards, for the erection of fireproof buildings, for the control of all productive work by experienced chemists and charge hands, and for compulsory fire drill. Two days is clearly not too long for the thorough discussion of the important matters set down for the Easter conference.

The Good Club Man

INTO the light-hearted banter with which he delighted the guests at the Chemical Industry Club dinner on Friday, Sir Ernest Benn contrived to interpose some observations on the functions of club life that seemed peculiarly appropriate. A keen club man himself, he regards the term "a good club man" as summing up most of the virtues of a good sociable citizen, and as proof that such a member has stood the searching test of intimate fellowship with his fellow-men. It is striking testimony, coming from the most fearless individualist leader of his time, and tends to confirm an old suspicion that the Individualist often proves to be the most companionable of neighbours and the pleasantest of fellow-workers, just as the Socialist occasionally turns out to be the most cantankerous member of committee and the most pedantic and intractable of holiday companions. Equally appropriate was the suggestion that the scientist and technologist, instead of converting the club into a sort of isolation camp for themselves, would gain immensely by the admission of a liberal commercial element. In no case is the advice more needed than in the case of chemists. By the necessities of their vocation, they use a language and work in channels exclusively their own, and unless some corrective is found they are apt to become a class to themselves. This is distinctly to be regretted, for the work they do touches the basis of almost every industry, and should bring them into close touch with industrial interests.

These ideas prefaced very happily the appeal that Dr. Dehn made, in replying, for the maintenance and the gradual extension of the Chemical Industry Club's membership and services. For the first time in its history the club has accepted donations, not because it needs funds, but because it sees no good reason sternly to reject some acts of friendship, and appropriately the first cheques for £100 each come from Mr. H. E. Coley, the "father" of the club, and Mr. T. Miller-Jones, the treasurer. If others follow their example, the committee will be encouraged to proceed with their idea of improving the amenities of the club and making it more than ever the social centre of chemical industry, and the membership may presently be brought up to the long-coveted thousand. The club's history represents a piece of sound creative work and good management; and what the pioneers created and have maintained out of nothing except their own resources their successors may well desire to preserve and extend.

The Calendar

Feb.		
13, 20, 27	Royal Society of Arts: "Fatigue Phenomena, with special reference to Single Crystals." H. Gough.	John Street, Adelphi, London.
13	Institute of Metals (Scottish Section): "Further Notes on Aluminium Alloys." D. R. Tullis.	39, Elmbank Crescent, Glasgow.
13	University of Birmingham Chemical Society: "Colour and Chemical Constitution." H. A. Hampton.	University, Birmingham.
13	Institute of Chemistry and Society of Chemical Industry (Edinburgh Sections): Papers on Recent Advances and New Apparatus. 8 p.m.	North British Station Hotel, Edinburgh.
14	Institution of Petroleum Technologists. 5.30 p.m.	Royal Society of Arts.
15	Institute of Chemistry (London and S.E. Counties Section): Dance.	Hotel Russell, London.
15	Institute of Chemistry (Manchester Section): "Manchester Scientists." Professor J. R. Partington.	Manchester, Ltd., Royal Exchange Buildings.
15	Society of Glass Technology.	Sheffield.
16	Royal Institution: "From Faraday's Note Books." Sir William Bragg. 5.15 p.m.	21, Albemarle Street, London.
16	Chemical Society. 8 p.m.	Burlington House.
16	Society of Chemical Industry (Birmingham and Midland Section): Communications by Dr. W. J. Hickinbottom and Dr. E. L. Hirst. 7 p.m.	Latin Theatre, University, Edmund Street, Birmingham.
17	Society of Dyers and Colourists (Manchester Section): "The Action of Light on Dyed Fabrics." F. Scholefield. 7 p.m.	36, George Street, Manchester.
17	Society of Dyers and Colourists (London Section): "The Dyeing of Gloving and Clothing Leathers." M. C. Lamb.	London.
17	Society of Chemical Industry (Liverpool Section): Joint meeting with the Manchester Section and the Fuel Section: "An Examination of the Influence of Various Factors on the Products of Carbonisation of Coal." H. H. Thomas. 6 p.m.	University, Liverpool

Sketches at the Club Dinner: By "Spider"

A GOOD JOKE!
(PROF. SMITHELLS & "MASTER" TURNER)

"MR. CHAIRMAN" (DR. DEHN)

SIR ERNEST BENN ARRIVES

"FATHER" OF THE CLUB (H.E. COLEY) WITH INSIGNIA OF OFFICE

Chemical Industry Club Annual Dinner

Sir Ernest Benn on English Club Life

At the annual dinner of the Chemical Industry Club a feature of the proceedings was an interesting speech on English club life by Sir Ernest Benn. Other speakers were Dr. Dehn (chairman), Mr. H. E. Coley, Mr. E. R. Bolton and Dr. W. R. Ormandy.

Dr. Frank Dehn (chairman of the executive committee) presided over a company of about 120 on the occasion of the annual dinner and smoking concert of the Chemical Industry Club, at the Connaught Rooms, London, on Friday, February 3. Among those present were the following :—

Sir Ernest Benn, Bart., Mr. E. R. Bolton (president of the Society of Public Analysts), Professor Smithells, Mr. Turner (Master of the Tallow Chandlers' Company), Mr. F. H. Carr (president of the Society of Chemical Industry), Professor Jocelyn Thorpe, Sir J. Irvine, Mr. H. E. Coley, Mr. S. Russell Smart, K.C., Mr. G. S. W. Marlow, Major Amberton, Mr. F. J. S. Broad, Mr. C. G. Dehn, Mr. F. A. Greene, and Mr. Thomas Kenneth.

B. Argent, E. J. Alderton, R. Alliott, C. A. Adams, Auden, J. W. Black, J. Blair, T. B. Bright, H. Baron, Dr. H. J. Bush, E. F. Brewis, F. Batson, Dr. H. Bleuter, R. R. Byrne, T. Hedley Barry, Dr. Dean Burk, H. A. Clapham, A. J. Chapman, W. H. Coleman, A. G. Craig, W. T. Collins, Thomas Clayton, D. H. Corsellis, R. S. Cheeswright, R. L. Collett, Professor E. C. Dodds, S. F. Dickens, P. S. Dyer-Smith, H. W. Dudley, J. A. Downie, Professor J. C. Drummond, R. Duncalfe, W. T. Eggleton, E. Fyleman, P. M. Fraser, C. J. Goodwin, W. E. Gooday, J. Griffiths, H. M. A. Hotoph, R. F. Hammer, F. E. Hamer, W. F. Hopkins, Capt. R. P. C. Harvey, E. Horton, A. E. Hatfield, T. Hunter, Dr. L. A. Jordan, H. Jephcott, E. H. D. Kay, Harley F. Knight, H. Kidson, J. Lees, A. E. Munday, H. L. Marriott, F. Marks, T. Miller-Jones, T. Miller-Jones, Jr., O. Napier, Colonel Newton, Dr. W. R. Ormandy, W. Palmer, L. R. B. Pearce, Peak, H. D. Penwarden, H. R. Peters, Mitchell A. Ross, J. Ronca, S. Read, W. S. F. Rackham, S. C. Radford, J. C. B. Richardson, D. E. Reid, W. Russell, C. W. Sharrock, F. F. M. Smart, W. C. Slater, W. R. Slater, S. Solomon, C. T. Shipstone, J. Sanderson, R. E. Stewart, F. R. Tate, Dr. E. H. Tripp, A. Thompson, C. Wood, Dr. G. N. White, G. Young, and J. Arthur Williams (secretary).

The Toast of "The Club"

Sir Ernest Benn, proposing " The Chemical Industry Club " in a humorous speech, stated that he knew nothing of chemistry. Some 45 years ago it was driven into him that CO_2, whatever that might be, had a nasty habit of turning lime water milky. Perhaps it was not a bad illustration of the danger of a little knowledge, because ever since then, especially in this synthetic age, when he had been enjoying his morning milk, he always had a horrid suspicion that it might be lime water treated with CO_2, whilst there was also the fear that his afternoon dose of lime water might be milk that had been de-carbonised (laughter). He did not intend, however, to make any apology for speaking to those who were learned in matters of which he himself was totally ignorant because, as a student of politics and economics and other matters, he had found that success in speaking was, as a rule, in inverse ratio to a knowledge of the subject.

A Synthetic Age

Scientists, he remarked, were a fearsome lot of people to ordinary Christians like himself, who stood aside and just wondered at the mysteries of the skill of the scientists and the wonderful things they did. They had actually added ten years to the normal span of human existence and then, probably as a sort of joke or because of the necessity of balancing things, they had so arranged matters that in the next war they would kill as many people per second as could be produced in a century. Scientists had brought us into a synthetic age to such an extent that when he took up his buttered toast in the morning he always had a suspicion that it really ought to be half a yard of linoleum (laughter). Everything was becoming so thoroughly synthetic that it had spread even into things like politics, and we found a synthetic Socialism hailed as the new Liberalism. Chemists were the wizards of the modern world. At the same time, he imagined that there were people just as clever as modern scientists about the time of Tut-Ankh-Amen or even before Christ, but they, like the modern scientist, over-did the thing a bit, and so we came back to the magic of the dark ages and the middle centuries. The normal ordinary person had some compensation in reflecting that the scientists and chemists had over-done things to such an extent that before long these ordinary people would be revelling in the sight of the scientists sizzling at the stake again (laughter).

English Club Life

They were met that evening to celebrate the annual dinner of the Chemical Industry Club, and they would be wise if, for the evening, they forgot all their formulæ and smells, and thought for a time of the delights of the club. The club was essentially an English thing. It took a body of Englishmen to make a club which, like the English home, existed in perfection only in this country. The club might be described as an institution, as the ideal expression of the spirit of collectivism. It differed entirely from the society or association, because an association meant having one opinion, whilst a club, if it were a good club, depended upon a variety of differing opinions. A good club man was a good man, and there was no better character that could be given to a friend than to say that he was in the best sense a good club man. The club man was the real philosopher ; he learned in his club that there were many different sides to a question and many different ways of looking at a question. The perfect English club brought out all the best that was in a man because it required a curious combination, which was only obtained in the ideal club, of friendship and camaraderie.

A Place for Commercial Men

The Chemical Industry Club, like all other clubs, had a chairman and a committee and it should be one of the ambitions of all members to get on that committee. He himself belonged to a club, and it was his ambition to get on to the committee some day, because there were many advantages attaching to a committee man. For instance, he had the luck at lunch in his own club not very long ago to find a piece of meat in his Irish stew and he could not understand this astonishing thing until he noticed that the carver had made a mistake and had thought the portion was for a member of the committee who was sitting near him (laughter). He had been told that the scientific people in the Chemical Industry Club were thinking of admitting a few very select merely commercial or business men. He hoped they would do that because it would be extremely good for them. It was generally a little difficult for the scientific and learned to mix with the commercial and business classes, but if the commercial men were admitted into the Club, the scientific members would be able to inculcate into them a larger sense of truth and a higher ethical feeling than was sometimes credited to the commercial class (laughter).

Finally, Sir Ernest said he could not sit down without congratulating the members of the Club upon its success in such a short time, because to increase the membership from 120 to 700 in a very few years was a wonderful record and showed that the scheme of the Club was a good one and filled a real place and supplied a real need in the great chemical industry. He coupled with the toast the name of the chairman (Dr. Dehn).

Dr. Dehn's Reply

Dr. Dehn, replying to the toast, which had been so eloquently and humorously proposed by Sir Ernest Benn, said that that part of Sir Ernest's speech which dealt with the club and what a club should be, accorded very fully with the ideas of the committee and himself. In casting about for a suitable definition of a club, he was reminded of a case about to be tried in the Law Courts, which concerned plant for the manufacture of a certain chemical by a catalytic process. At a conference in connection with the case there was an eminent K.C., a junior, two solicitors, a chemical witness and himself. During the conference the K.C. said he had no idea what was meant by the word catalyst, and asked somebody to tell him. He himself hazarded the following definition : " A catalyst is a substance without which a certain chemical reaction cannot take place ; it does not enter into it itself, is left unchanged at the end of the reaction, but promotes it." The K.C. immediately replied that he would always remember what a catalyst was and looking round the room he said, " We professional men, I think, must be catalysts because these legal disputes cannot take place without us, we really

do not enter into them ourselves, we are left quite unchanged by them, and yet we promote them." (Laughter.)

A Common Platform for Chemists

The Chemical Industry Club came very much within this definition. If they considered the state of affairs in British chemical circles before the war and the lack of co-operation and mutual understanding in those days, if they remembered how each learned society ploughed its own lonely furrow, how few opportunities there were for chemists to meet together, and then compared it with the state of affairs to-day, it must be agreed that there had been a wonderful improvement in the last 15 years or so (applause). To-day, one of the well-known chemical societies freely and on a voluntary basis placed its library at the disposal of all the members of the other societies (hear, hear). There were several societies combining together to arrange for the joint publication of chemical matter. There were various institutions and societies combining together to hold dinners and other social functions, and last but not least there was the talk, which had been going on for some years and which perhaps some day would lead to some tangible result, of establishing a Chemistry House.

These results were just a few things illustrating the improvement which had taken place, and he publicly claimed a substantial share of the credit for these improvements for the Chemical Industry Club which had assisted to bring them about in the true manner of a catalyst. The Club opened its doors to all engaged or interested in chemistry or chemical industry. In the Club, merchants could meet manufacturers on an equality, and were able probably to find out that the other fellow was not so bad after all. The young chemist who had recently taken his degree would in the Club find that his professor was not nearly so terrifying a person when consuming a dry Martini as he was when behind the lecture table or taking a *viva voce* examination. In this quiet way the Chemical Industry Club was performing behind the scenes an extremely useful function.

The Club's Future

The Club had now been in existence for nearly 10 years, and it was only natural that various schemes of improvement should come up from time to time with regard to the renovation, decoration, and refurnishing of the premises. The subscription income, however, was very modest, but he claimed there was no club in London offering even approximately the same facilities for the same modest subscription. (Hear, hear.) There had been many occasions in the past when the Committee would gladly have effected this or that improvement, but they felt under an obligation for reasons of prudence to defer the matter. The financial position of the Club was and always had been a perfectly sound one. It was one of the few clubs in London which had always made ends meet, although perhaps it had not always been an easy matter to do so. It could be imagined, therefore, with what pleasure the Committee recently received offers of two very handsome donations, which had been accepted with gratitude and pleasure, the more so because they had come from members who had been intimately associated with the Club and had its interests very much at heart. These donations, which were of £100 each, had been generously made by Mr. H. Edwin Coley and Mr. T. Miller-Jones. (Applause.) Mr. Coley had been the true father and founder of the Club. He was its first hon. secretary and was a past chairman. Mr. Miller-Jones was the hon. treasurer of the Club and was also doing excellent work in its interests. For a long time the Committee's policy had been not to accept donations, but having regard to the conditions and the source from which these first donations had come, he had been authorised by the Committee to state that they would be extremely pleased to accept donations in future from any member of the Club in order to assist in maintaining its services and premises in the highest state of efficiency. (Applause.)

Personal Toasts

Mr. H. E. Coley, proposing "The Visitors," specially mentioned the presence of Dr. A. Smithells (President of the Institute of Chemistry), Mr. F. H. Carr (President of the Society of Chemical Industry), the Master of the Worshipful Company of Tallow Chandlers, and Mr. Russell S. Smart, K.C., of Canada, a member of the Chemists' Club of New York. To all the guests he offered a hearty welcome to the Club whenever they cared to go there.

Mr. E. R. Bolton (President of the Society of Public Analysts), who replied, said that although he was replying on behalf of the visitors, he was himself a member of the Club. On behalf of the visitors, however, he thanked the Committee and the members for their hospitality.

Dr. W. R. Ormandy, proposing "The Chairman," spoke of the excellent manner in which he had carried out the duties of Chairman of the Club, which owed its existence to the indomitable energy of Mr. Coley.

The Chairman briefly acknowledged the toast, and specially thanked Messrs. Marlow and Greene and the Secretary for their work in making the dinner a success. He concluded by proposing the health of Mr. Ward, the steward, which was cordially received.

Songs, etc., were afterwards contributed by Mr. Robert Easton, Mr. Norman Long, and Mr. Cyril Shields.

Tar Pool Case Appeal

On Monday the Court of Appeal, composed of Lords Justices Scrutton and Atkin and Mr. Justice Astbury, had before them the case of Crow, Catchpole and Co., Ltd., *v.* Burt, Boulton and Haywood, Ltd., which was an appeal of plaintiffs from an order of Mr. Justice Swift.

It appeared that the plaintiffs commenced an action seeking an injunction to restrain defendants committing a breach of an agreement with plaintiffs, because the defendants had entered into an agreement with the South Eastern and Kent Board with regard to the pooling of crude tar. Plaintiffs' case was that this area should have come into the pool. Defendants took out a summons to stay proceedings. By consent it was referred, and Mr. Justice Swift, in chambers, made an order staying the proceedings. The plaintiffs now appealed from that order.

Mr. Fortune argued the case for the appellants, and said that at present great difficulty was experienced in getting supplies of crude tar. The defendants had acquired a business and plaintiffs had suffered damage from the non-delivery of crude tar from the business acquired.

Lord Justice Scrutton, in giving judgment, said they were not sitting to try the case. They merely had to adjudicate on the matter as it was presented on appeal from an order of a judge in chambers. It seemed a sound contention that it was impossible to stay the action under the circumstances. Here an action was being brought, and one of the parties not being a party to the arbitration clause, what should the Court do? He came to the conclusion that the action should go on in open Court, and therefore the appeal succeeded.

Lord Justice Atkin and Mr. Justice Astbury agreed.

Difficulties in Dyeing

"Some Causes of Uneven Dyeing" was the title of an illustrated lecture to the West Riding section of the Society of Dyers and Colourists at the Midland Hotel, Bradford, a short time ago, by Mr. H. R. Hirst, of the British Research Association for the Woollen and Worsted Industries, Leeds.

Mr. Hirst said that wool in an alkaline state was very sensitive to certain influences, and these, if they acted unevenly on the wool, caused uneven absorption of the dye, and uneven results were thus frequently beyond the dyer's control. A large amount of research had been done at the headquarters of the Association regarding the behaviour of wool fibres and dyes, and results had been obtained which were of great benefit to the industry. The work was steadily being continued with the object of presenting to the industry results which would reduce technical difficulties.

Sir Edward Frankland Essay Competition Result

The premier place in the Sir Edward Frankland essay competition, open to all registered students of the Institute of Chemistry, has been awarded to Mr. Malcolm Gillies, an Honours student in the chemistry department, Glasgow University. The prize is a gold medal, and an additional award of £10 10s. This is the first year of the competition, which was founded in memory of the Institute's first president, Sir Edward Frankland. The subject of the essay was "The Importance of Chemistry to the Welfare of the People."

Problems in the Manufacture of Fine Chemicals

Mr. F. H. Carr on Modern Methods and Ideas

At a meeting of the London Section of the Society of Chemical Industry on Monday, Mr. F. H. Carr (president of the Society) gave a short talk on "Some Problems Encountered in Making Fine Chemicals." He stated that as he had not had time to prepare a considered address he would give a brief account of some of his own experiences in connection with the manufacture of fine chemicals, which might contain matters which would be of assistance to others.

Pointing out how the chemical industry has developed step by step with the development of engineering, Mr. Carr emphasised the ever-increasing importance of refinement of factory manipulation, and added that the manufacture of fine chemicals was less bound by established fixed processes than any other department of chemical industry. At any rate, if this was not true of all fine chemicals, it was true of many, and it was important that there should be every possible opportunity in the chemical plant for the persistent and continual study of the conditions under which reactions took place, so that the chemist in charge of the process would be encouraged to take an intelligent interest in all that he was doing with a view to improving the yield gradually, stage by stage.

Necessity for Controlling All Factors

In organic chemical manufacture there were often as many as ten stages for a given product, and a difference of even 1 per cent. yield at each stage made an enormous difference in the yield at the end of the ten stages. There was, therefore, a vital necessity for minute control, stage by stage, throughout the whole of the process.

It was essential to be able to control the speed of mixing, the temperature when mixing at the known speed, the working conditions of the temperature for the reaction, and the optimum concentration for the reaction. These were the principal variables, and it was necessary that devices should be available which would give the control of them. Plant should be so designed and arranged that the chemist could withdraw samples at all the different stages and at the same time control all the conditions, and by working in that way it was possible to exploit a reaction in ways quite different from those ordinarily encountered.

Mr. Carr showed a diagram of an apparatus for carrying out this control of temperature, speed of mixing, etc., and the withdrawal of samples during the reaction, and said that only in this way was it possible to get on the large commercial scale results approximating to those obtained on the small scale in the laboratory. Indeed, by gradual attention to these details it was often possible to obtain better results on the large scale than on the laboratory scale.

As an instance of the care necessary in the manufacture of fine chemicals, reference was made to an incident which occurred during the war, when large quantities of the granules for gas masks used by the troops at the front were suddenly found to be of such a nature that they could not be passed for use. Every conceivable source of difficulty was examined without effect until eventually it was discovered that a new edge runner mill was being used for the grinding, and when, in the hope of something turning up, the old edge runner mill was put into use again all the trouble disappeared. It was then ascertained that there was something in the metal of which the new edge runner mill was constructed which was acting as a catalyst and ruining all the granules, probably nickel or cobalt in the cast iron.

The Relationship of Engineer and Chemist

Another aspect of fine chemical manufacture touched upon the relationship between the engineer and the chemist, and Mr. Carr expressed a preference for the adoption of the system which was very common in Germany, namely, that when the chemist took over the engineer's plant he should have sufficient control to be able to carry out small changes in his process without the necessity for the delays and anxieties attached to waiting for the engineer to come and do this for him. To enable this to be done, of course, it was necessary that the plant should be designed in a sufficiently elastic manner, and, added Mr. Carr, the great advantage of such methods was that we did not find the engineer blaming the chemist and the chemist blaming the engineer.

A slide was shown of a German apparatus for the rapid mixing of two liquids, the one flowing in from the bottom and the other from the top at regulated speeds, this being indicated as another instance of the value of control and refinement of manipulation in factory operations. The next point mentioned was the importance of a perfectly clean atmosphere, and a brief description was given of the method adopted by British Drug Houses, Ltd., to ensure this result. The rooms in which fine chemical manufacture was carried out were fed with air which was passed through two thicknesses of fibre matting and falling water spray, the air being finally delivered through ducts by means of fans, and reaching the room in a perfectly dry and clean state. In this way it was possible to work open pans of large diameter without any accumulation of condensed moisture in the room. Other illustrations were shown of methods adopted by British Drug Houses, particularly in connection with the manufacture of insulin.

More Imagination and Less Dogma

In conclusion, Mr. Carr said the great need for those engaged in science was to avoid the danger of lapsing into dogmatism. Very often it was the scientifically unexpected thing which became the keystone to some great commercial success. Courage and imagination were required to carry into effect bold experiments, of which there were many examples, and boldness also in the more mechanical type of laboratory technique to which he had referred during his lecture. Success and even fame were open to all who used the opportunities which were at hand. Industrial chemists were a little too much disposed to behold the mote in their brother's eye, and to overlook the beam in their own eye, and what was wanted was a greater faith in knowledge and science, and a better understanding of what science had done and could do for industry.

Scientists called for more scientific education, for more research, and more additions to the wealth of scientific knowledge, but it was very often overlooked that right at hand was the fundamental knowledge on which the capitalists were willing and even eager to risk their money, if schemes were properly laid before them, and it might well be that lack of faith amongst chemists themselves was the thing which was holding development back. It was impossible not to be impressed with the fact that the greatest rewards had come to those who had relied on a well-founded belief in the methods of the laboratory to lead them to their discoveries. There were ample materials and chances for success, and chemists must be prepared to go right in and direct experiments with imagination and to carry them through as much as possible with their own hands. In this way only could we seek the best fulfilment of our lives and further the national prosperity.

A vote of thanks to Mr. Carr was carried with acclamation, and the meeting then closed.

New Volume of "Organic Syntheses"

Chapman and Hall have just published Volume VII of *Organic Syntheses*, the annual publication of satisfactory methods for the preparation of organic chemicals. Professor F. C. Whitmore is the editor-in-chief, and the contributors number 24, of whom 20 are from the United States, 1 from Holland, 1 from Great Britain, 1 from Switzerland, and 1 from Germany. The preparations dealt with are as follow: Anhydro-2-hydroxymercuri-3-nitrobenzoic acid; *p*-arsonophenoxyacetic acid; benzanilide; β-bromoethylphthalimide; 2-bromo-3-nitrobenzoic acid; chloroacetamide; *p*-chloromercuribenzoic acid; α-cyano-β-phenylacrylic acid; *p*-dimethylaminobenzophenone; 3:5-dinitroanisole; diphenic acid; ethyl bromomalonate; ethyl *n*-butylacetoacetate; furane; furfuralacetone; 2-furylmethyl acetate; guanidine nitrate; hydrogen cyanide (anhydrous); β-hydroxypropionic acid (hydracrylic acid); *p*-iodobenzoic acid; methyl *n*-amyl ketone (heptanone-2); α-methyl mannoside; nitroguanidine; 3-nitrophthalic acid; 3-nitrophthalic anhydride; pentene-2; phthalimidomalonic ester; triphenyl stibine; xanthone; and xanthydrol. The author and subject indexes cover the whole series of volumes.

Chemistry and World Peace

A Great Part for the Scientist

A COMBINED meeting of university students, held under the auspices of the Andersonian Society at the Technical College, Glasgow, on Friday, February 10, listened to a stimulating address by Dr. H. H. Hodgson, head of the Departments of Chemistry and Colour Chemistry at the Technical College, Huddersfield, on "Chemical Science and World Peace." Viscount Cecil addressed the students on the previous Friday, and next Friday there is to be a debate on "Is world peace in the hands of the chemist?"

Dr. Hodgson said that a short time ago Mr. Filene, a public-spirited American, offered certain prizes for the best suggestions by which world peace could be promoted through international co-operation. The present lecturer's effort drew a blank, probably because of its unconventional character, since in it themes involving leagues of nations, currency questions, limitations of armaments, etc., were discarded as too ephemeral, and a scheme of constructive co-operation outlined which was based on the solid fact that great movements, changing completely the character of human activity, had not usually been the result of round table conferences but rather of scientific discovery.

Making Chemical Science Constructive

Dr. Hodgson stated that he would not again have put forward his views as he did in *Nature* (March 10, 1923, p. 343), and in the *Journal of the Society of Dyers and Colourists* for 1920, 1922, 1923, and 1924, but for the fact that the League of Nations Union appointed Dr. Norwood, of the City Temple, to conduct a special crusade last year on the subject of peace, and one of the features of his earlier addresses was an appeal for the harnessing of chemical science for constructive instead of destructive ends, and thereby proving a real co-operative peace factor. Since this idea formed the whole fabric of the lecturer's essay plan, unique, he believed, in so far as related to the prize competition, he felt that the present occasion was a suitable opportunity for making the circumstances public. A recent utterance by the President of the American Chemical Society was very germane to the above remarks, viz., " . . . synthetic organic chemistry will prove itself to be, perhaps, the most potent factor of all those that are working towards the advancement of civilisation and the peace of the world."

The acquirement and national distribution of material and intellectual wealth with the resultant of peace could only be secured under the influence of a new dynamic. In mediæval times such a force appeared in the religious zeal which promoted the Crusades; later a similar urge produced extensive colonisation; to-day a universal desire for progress existed with no collective means for its realisation. History, however, showed that all great movements, whether religious, political, or social, must have an objective goal, negative or neutral attitudes winning no pioneering enthusiasm and resulting eventually in the decline of the cause whose promotion was sought.

Peace through Science

Universal suffrage being no longer regarded by thoughtful people as the necessary and sufficient cause which would naturally and easily produce the best possibilities of human life, the lecturer turned to the great coal tar industry, which, with its ramifications, had so profoundly influenced the panorama of events in our time, as probably containing within itself the embryo of the immediate future. This industry was based largely on academic discoveries, which according to many pre-war standards of valuation would be considered worthless, but which gained for Germany such a world monopoly that its chemical exports alone were double those of our coal and as great as those of our cotton industries. Unfortunately, the potentially destructive powers of the chemical industry became kinetic during the recent war and, in consequence, this became almost entirely chemical in its final phase. The lesson deduced must be that increased productivity of mental and physical labour, accompanied by growing population, might lead temporarily to a higher standard of living, but almost inevitably ended in war.

Civilisation depended on the continuous effort of will to keep institutions in correspondence with human needs, and the view that increased production alone, without any fundamental reorganisation, would restore our pre-war economic mechanism, was in his opinion responsible for many of our present discontents. Since the world of to-day was directly the result of the past century of scientific discovery, future progress must inevitably be considered from the standpoint of continuity, and the promotion of peace and prosperity sought after by further application of the scientific method.

Research Released for Service

This might be achieved by the organisation of the research talent of each country, which at present was partly dispersed in isolated groups and more generally engaged in purely routine work. For this purpose every large centre of educational activity should have a definite organisation or colony set apart for research. The scale of finance involved would be trivial compared with that at present expended on ordinary welfare projects. To solve immediate problems, those subjects concerned more intimately with human affairs should receive precedence, and to obviate bureaucratic dangers, the research colonies should be small in actual personnel. This point was stressed because our industrial as well as our political outlook was towards mass production in everything, and this in practice was only too often invalidated by human limitations. Any man, however great his genius, was very finite in capacity either for organisation or research, and as soon as the demands of business or of science transcended this capacity, then waste and inefficiency resulted.

By such an organisation as the one outlined, genius now rotting in routine channels would be released for service, new careers and professions would be evolved, and far-reaching social changes could be anticipated consequent on the industrial development which would follow the phethora of new discoveries. Education would recover the freshness and virility which it was nowadays in real danger of losing, and an entirely changed atmosphere would be created. With the momentum gathered from the alteration in the world outlook, international co-operation could be effected in matters inimical to the interests of civilisation, so that secret processes and products would become things of the past and political weapons unable to include dangerous monopolies. The new vision and spirit engendered would bring peace so far as it was attainable by material means, and the present decay of civilisation would be arrested.

Extensions at Birmingham University

THE Council of the University of Birmingham, in a report to the Senate on the removal of several Faculties of Science from Mason's University College, Edmund Street, to the main university buildings at Edgbaston, state that the total cost of the new biology buildings and the adaptation of the premises at Edmund Street is within the original estimate of £120,000. It is noted that since the opening of the Mining Department coal-treatment laboratory in 1926 much work has been done. Thanks to the generosity of a number of donors, a programme of research of great practical value to the mining industry and coal consumers generally is now being prosecuted. New apparatus and equipment of the Metallurgy Department, for which the Council voted a sum of £4,000, is having a beneficial effect on teaching and research. Additional apparatus for metallography and testing of materials has made it possible to introduce new practical courses that were urgently required, and additions in the foundry and smelting section enable students to obtain a good training in the principles and practice of casting, working, and heat treatment of metals and alloys. The facilities for research have been greatly increased, and the field of possible research work largely extended.

The Pittsburgh Coal Conference

DR. THOMAS S. BAKER, President of the Carnegie Institute in Pittsburgh, Pennsylvania, U.S.A., who organised the International Conference on Bituminous Coal held at that institution in 1926, sails on the *Berengaria* for Europe on February 10. He is due to arrive in Paris on February 16. He will spend about six weeks in several European countries for the purpose of organising the foreign part of the second International Conference on Bituminous Coal which will be held at the Carnegie Institute of Technology in the week of November 19, 1928. While in Paris, Dr. Baker, will give a series of four or five lectures in French between March 15 and 22, under the auspices of the Carnegie Endowment for International Peace. His general subject will be "What the United States is thinking about."

Painting of Plasters and Cements

A Joint Discussion

At a joint meeting of the Incorporated Institute of British Decorators and the Oil and Colour Chemists Association at Painters' Hall, London, on Wednesday, February 1, a joint discussion on the painting of plasters and cements took place. Mr. Godfrey Giles (president of the Institute) and Dr. H. Houlston Morgan (past-president of the Oil and Colour Chemists Association) acted as chairmen.

Mr. W. E. Greenwood, speaking as a decorator, said he felt the great need for some central organisation to which a decorator could apply for information as to the nature of the materials which could be placed upon cement and plaster surfaces. Such a body should be able to state the chemical composition of the paint that could safely be used, according to the nature of the surface to be covered.

Chemical Composition of Plastering Materials

Mr. A. D. Cowper, of the Building Research station, gave a brief account of the chemical composition of the common types of plastering materials from the point of view of the application of paint to them, adding that the ordinary text books are often misleading in this respect. The use of an alkaline plaster always meant trouble, from the painting point of view, for months, and in the chemical composition of plasters one should always look out for lime. A written guarantee from the maker of a plaster was the only safeguard.

Mr. S. A. Bone, a paint manufacturer, said that if the basic principles associated with the painting of cements and plasters were better understood, there would be fewer failures. The two great enemies of the painter on walls were moisture and alkali. Paints of an oily character would not adhere on wet plaster and the plaster must be dry. Mr. Bone said he did not think that tung oil in combination with a pigment could be used to kill the lime. Tung oil would not kill lime, but it could be used, and was used, to resist the effect of alkali and formed a very important ingredient in most alkali-resistant primers and undercoats. In the case where walls were definitely known to be alkaline, one of the best preliminary treatments was a solution of zinc sulphate.

Possibilities of Silicon Ester

Mr. T. Wilson (superintendent of works, Houses of Parliament) said that much of the trouble to-day in painting plaster surfaces was due to the fact that so little time was allowed for them to dry. What the chemists would have to do in this matter was to find a substance which would be as fluid as oil paint and have a permanence which could be guaranteed. Painters and decorators had experimented empirically and had obtained some very interesting results, which, however, needed verification by the chemists. He therefore suggested that the chemists should take this matter boldly in hand, and lay it down with a certain amount of dogmatism that there were certain things which could be used. They should clear the ground of oil paint and attempt to find something of a different nature, as, for instance, a product which had recently come on to the market, and which he had experimented with in regard to fresco work, viz., a silicon ester. There were great possibilities for this, although at present it was in its tentative stages.

Dr. J. J. Fox (of the Government Laboratory) said his advice in regard to painting plaster walls was to give the walls plenty of time to dry before painting. Unless that were done, the painters were asking the paint manufacturers to provide something which was impossible. With a lime plaster, the lime remained free under the surface for a considerable period. Zinc sulphates, if carefully used, would neutralise the lime by forming zinc oxide and calcium sulphate. There was another way of dealing with the matter which had not been used to any great extent, and that was, after a period of say two years from the building of the wall, to give it a coat of a solution of zinc silicofluoride or magnesium silicofluoride, materials which were on the market under proprietary names. That would be as effective, probably, as zinc sulphate. As a chemist, he could see another way altogether. When the colloid chemists really got to work in paint manufacture, they ought to be able to produce a water emulsion containing sufficient waterproofing material and pigment colours to go straight on even to a wet plaster.

Gas Light and Coke Co.'s Meeting

Sir D. Milne-Watson's Review of the Year

The annual general meeting of the Gas Light and Coke Co. was held on Friday, February 3, at the chief office of the company, Horseferry Road, London, Sir David Milne-Watson, governor of the company, presiding.

Dealing with the revenue from residuals and by-products of gas manufacture, he stated that coke showed a decrease of £267,000, and breeze £70,000. These decreases followed upon the fall in the price of coal. On the other hand, tar and its products and ammoniacal liquor showed an increase in the total of £218,000.

In order to encourage the use of tar for road-making and to ensure that tar of a suitable quality was supplied throughout the country, the British Road Tar Association had been formed, and they as a company had become members. It was hoped that in due course all makers of tar (whether gas or coke oven undertakings) and tar distillers would join the association.

A Low-temperature Carbonisation Experiment

A great deal had been heard during the year about low-temperature carbonisation. They were approached by the Government some time ago as to whether they would be willing to put up a low-temperature plant at their works. They hesitated to do so as they were not convinced that the method of carbonising coal was commercially sound as far as a gas undertaking was concerned, and, therefore, did not think it right to risk the company's money in the experiment. However, after protracted negotiations they came to an arrangement with the Government by which they were to put up a plant at their Richmond works, the Government advancing £100,000 towards the cost of that plant. They had now cleared the site and had started erecting the plant, and hoped to be able to get it to work in a few months. That experiment should prove most interesting and one which would enable the Government and themselves to form some idea as to the commercial value of that process of carbonisation. At the end of three years the company had the option of purchasing the plant if they were satisfied with it, and, on the other hand, the Government might sell it if they decide not to go on.

Sir D. Milne-Watson referred to the need for amended gas legislation of a character which would free the industry from many of the restrictions which to-day hampered its operations. The Government, recognising the importance of the question, had referred the whole subject to the National Fuel and Power Committee. As soon as that body had reported, he trusted that the Government would see its way to introduce a measure giving effect to the proposals at the earliest moment possible.

Scientific and Industrial Co-operation

Much had recently been made of union between industry and science. He would like to point out in this connection that the gas industry had for many years had a working arrangement with Leeds University, who investigated problems connected with gas, greatly to the advantage of the industry. They as a company had also within the last few years established relationship with the Imperial College of Science, Kensington, who were also engaged on certain gas investigations. That shows that the gas industry has long realised the benefit of correlating science and industry, and they were particularly glad to learn that other industries were following suit.

The report and accounts were adopted.

At the subsequent extraordinary meeting the Chairman said that in August, 1926, they obtained an Act giving them additional powers for raising capital. The amount of the additional capital they are allowed to raise was a sum just under £5,000,000. They were again approaching the time when it would be necessary for the company to be in possession of further capital. Although they were asking the meeting to sanction the creation and issue of the whole of the amount allowed by the additional capital powers, the directors would pursue the cautious policy which they had followed for many years.

A resolution was adopted empowering the directors to create and issue debenture stock, or to borrow on mortgage of the undertaking, sums not exceeding in the whole the amount authorised by the company's Act of 1926.

Publicity and Registration

To the Editor of THE CHEMICAL AGE.

SIR,—As a result of the publicity achieved for the profession through the Press reports of the annual dinner of the British Association of Chemists, the Association has been the object of some adverse criticism which seems to call for comment.

In the first place the Association cannot be responsible for the form taken by publicity of which it is not the direct author; but as to the publicity itself, far from regretting it, the Association is gratified that in a single evening it should have been able to accomplish so much.

In the second place, it is our view that the profession has arrived at a point in its history when every effort must be made to bring its activities, both scientific and administrative, before the eye of the public. It must not be forgotten that such a policy as that of registration cannot be accomplished without the goodwill of the community, and that goodwill cannot be created in an atmosphere of ignorance. We should be far from wishing to claim unique responsibility for the increased publicity which the profession has lately enjoyed, but for a large share of it the Association had indeed been responsible.

The charge of inconsistency made against the Association is even less easy to understand. It has been seriously stated that while condemning advertisement, the Association has, in fact, consistently advertised. In this connection it is necessary to point out that the Association continues to discourage and condemn advertising by individual practitioners, but with perfect consistency does everything possible to advertise the profession. It is almost incredible that anyone should suppose that what is wrong for an individual must also be wrong for a society.

It has been the singular weakness of the profession that what might be described as fastidious incapacity has paralysed its efforts at publicity. The cure wrought by the physician or surgeon, the bridge built by the engineer, the successful process argued by the solicitor or barrister, stand as monuments by themselves; those of the chemist are less evident if unsupported by explanation and exposition. And it is exactly in this matter of exposition that the chemist has so lamentably failed for fear, apparently, that he will be accused of being businesslike.

The science of chemistry, however, has now become so closely bound up with industry that this point of view is archaic and dangerous. Questions of administration, of which registration is the most important are, after all, business questions, to which modern methods must be applied.—I am, etc.,

HY. T. F. RHODES,
General Secretary, British Association of Chemists.
"Empire House,"
175, Piccadilly, London, W.1.

The Reid Process

To the Editor of THE CHEMICAL AGE.

SIR,—My late husband's patent process (now mine) of creating a power-gas from the gases given off during lime-burning is suffering through confusion with the lime fuel scheme which was the subject of a recent prosecution.

Will you allow me to state that my Reid power-gas process bears no relation whatever to any chalk fuel or other process? It is a simple patent for converting into a power-gas gases given off when lime and coal are burning together—as they must do in the ordinary process of lime-burning—and no claims which cannot be substantiated by practical demonstration will be made for this power-gas. Our plant for doing this will soon be ready and, until that time, will your readers do me the justice of suspending judgment as to the value or otherwise of my property?—Yours, etc.,

ETHEL REID
(Executrix of the late Dr. T. A. Reid, Ph.D., F.C.S.).
31, St. Swithin's Lane, E.C.4.
February 2.

A BENJAMIN FRANKLIN MEMORIAL, of a utilitarian kind, is to be erected in Philadelphia, at a cost of £2,000,000. Mr. C. H. K. Curtis, head of the Curtis Publishing Co., is chairman of the committee.

Vulcanisation of Rubber

Effect of Zinc Oxide

A JOINT meeting of the Manchester Sections of the Society of Chemical Industry and the Institution of the Rubber Industry was held on Friday, February 3, Mr. C. J. T. Cronshaw presiding. A paper, entitled "The Influence of Zinc Oxide on the Coefficient of Vulcanisation," by S. A. Brazier and L. R. Ridgway, was read by the first-named author.

It was stated in the paper that the coefficient of vulcanisation was first introduced by Weber as a convenient method for defining the state of cure of vulcanised rubbers. In technical products it was often determined by subtracting the free sulphur extractable by acetone from the total sulphur present. This ignored any reaction developed during cure between the sulphur and any compounding ingredients present. A reaction between sulphur and any litharge present had long been recognised and allowed for. The effect in the case of zinc oxide, however, had been considered negligible.

The investigations now reported showed that this no longer held good if certain common types of organic accelerators were used, and, in the presence of these bodies, an incorrect figure for the true coefficient of vulcanisation was obtained, if allowance was not made for the zinc sulphide formed. The effect was not constant, the amount formed depending on curing conditions, the percentage of zinc oxide or sulphur present, as well as upon the type of accelerator used, and the additional presence of other compounding ingredients. Figures were given for typical vulcanised rubbers used in the rubber trade. As the coefficient of vulcanisation formed part of many specifications for rubber products, the above correction was obviously one of considerable importance, in view of the wide use of organic accelerators.

Meeting of Society of Public Analysts

AN ordinary meeting of the Society of Public Analysts was held at the Chemical Society's Rooms, Burlington House, London, on Wednesday, February 1, the president, Mr. E. R. Bolton, being in the chair. The following were elected members of the Society:—G. R. Barnes, C. A. Bassett, Ethel I. Beeching, H. P. Buttrick, C. O. Harvey, H. V. Horton, T. Howard, H. McK. Langton, W. A. N. Markwell, W. G. Messenger, E. J. Newby, H. S. Rooke, S. Sera, C. T. Symons, D. R. Thomas, and W. A. Whitley. The following papers were read and discussed: "The Determination of Butter in Margarine," by L. V. Cocks and E. Nightingale; "The Deposition of Metals on Copper from Cyanide Solution—I. A New Method for the Separation and Determination of Small Amounts of Lead," by B. S. Evans; "Investigations into the Analytical Chemistry of Tantalum, Niobium and their Mineral Associates—X. The Separation of Silica from the Earth Acids: XI. The Precipitation of Titanium by Tannin," by W. R. Schoeller, and A. R. Powell; "The Determination of Carvone in Dill Oil," by Professor J. Reilly; and "Seasonal Variations in the Composition of the Latex of *Hevea Brasiliensis*," by N. Rae.

Chile Nitrate Amalgamation Hitch

SHAREHOLDERS in the Angela Nitrate Co. and the Santa Catalina Nitrate Co. have received a circular from the directors which states that since resolutions approving the amalgamation of the two companies were passed, information has been received from Chile that the owner of an adjacant property has presented a claim for damages on the ground that both companies had trespassed and worked raw materials from his land. While they are not unduly alarmed, the directors of the companies concerned do not feel justified in recommending shareholders to proceed with the amalgamation pending further inquiries in Chile as to the substantiality of such claim.

Asbestos Manufacturers' Capital Increase

MANUFACTURERS of asbestos, magnesia and cork goods, Turner and Newall, Ltd. are to increase their capital. The present issued capital is £806,000 of 7 per cent. cumulative preference shares and 2,029,862 ordinary shares of £1. It is proposed to increase the authorised capital by £1,000,000 to £4,000,000, and to offer the holders of ordinary shares one new share for every ten old at a price of 47s. 6d. This will increase issued capital by £202,986, and will bring in approximately £482,000.

Reviews

KOLLOIDCHEMIE. By R. Zsigmondy. Second Volume, Fifth Edition. Leipzig: Otto Spamer. 16 Rm.

This excellent volume bears the stamp of the author—a great figure in theoretical and practical colloid chemistry, a man who took a leading part in the evolution and applications of the ultra-microscope. It deals with the preparation, properties, and uses of the colloidal metals; the protection of metallic colloids; colloidal metallic oxides and oxyhydrates; colloidal sulphur and selenium; the colloid chemistry of soap, dyestuffs, proteins, etc. The book is up to date, for it devotes proper attention to such matters as silica gel and the permutite process. It does not, however, mention colloid mills. For those who understand German it forms easy reading, untrammelled by excess of mathematics, the deductions of which are given in language intelligible to the average chemist and physicist. Its description as text-book is modest; it is a compendium of the subject where one gets a concentrated account of the achievements in almost any of its branches. The book would have been ideal if the author had limited the references to his not generally accepted views on the structure of colloidal matter. Nevertheless, it is a volume which everyone connected with the science or practice of colloid chemistry should possess. S. P. S.

LATEX. By Dr. Ernest A. Hauser. Dresden and Leipzig: Theodore Steinkopff. Pp. 231. 16s.

Dr. Hauser is particularly well qualified to write on the subject of "Latex," to the study of which he has devoted much time during the past few years, and his publications regarding the nature of the rubber particle and cognate matters are familiar to all rubber research workers. In the present volume he deals, indeed, in accordance with the sub-title, with "The Occurrence, Production, Properties and Technical Applications" of rubber latex, but he has wisely dealt on the one hand only in outline with those features which have been recently or adequately treated by other authors (*e.g.*, de Vries in *Estate Rubber*, Stafford Whitby in *Plantation Rubber*, or B. D. Luff in *The Chemistry of Rubber*), and on the other hand has handled in detail more recent work, including his own, and such matters as obviously needed collating to make them intelligible to the general reader.

The contents of the volume under review are subdivided along the following lines: (1) Historical Data; (2) A Sketch of the Chief Rubber, Gutta and Balata Plants; (3) Latex and Its Production; (4) The Specific Gravity and Viscosity of Latex; (5) The "Non-rubber" Constituents; (6) Latices other than Hevea; (7) Coagulation: Preparation of "Whole Latex" Rubber; (8) Preservation, Transport and Concentration; (9) Vulcanised Latex; (10) Industrial Applications. In addition there is a chapter on the structure of rubber and a most useful patent glossary, the latter prepared by Dr. von Boernegg. The general reader who wishes to become acquainted with a fascinating subject or the specialist who is seeking for a work of reference on it will do well to add *Latex* to their library.

PHILIP SCHIDROWITZ.

AN INTRODUCTION TO THE SCIENTIFIC STUDY OF THE SOIL. By Norman M. Comber, D.Sc., A.R.C.S., F.I.C. London: Edward Arnold and Co. Pp. 192. 7s. 6d.

With the growing use of chemical fertilisers, the attention of chemists has been drawn more and more towards agriculture. In this regard, the study of the soil (or pedology, to use its modern name) takes a prominent place. The subject is founded on chemistry and physics, and Professor Comber's little book forms an excellent introduction to it. In the small compass of 192 pages he gives an account of the matter into which is compressed a large amount of valuable information, including discussions on the soil and the plant; soil genetics; soil particles; soil colloids; soil water; soil air; soil temperature; the absorptive properties of soils; soil nitrogen; the mineral plant food in soils; the classification of soils; and the artificial treatment of soils. A perusal of the book throws an interesting light on the manner in which the field of chemistry is widening. As the author says (p. 19): "It is quite likely that the state of our knowledge of general chemistry is a limiting factor to the development of soil chemistry. Almost every new development in physical chemistry seems to throw fresh light upon soil problems." While the book is described as "essentially a communication from a teacher to students," it can be confidently recommended to all who wish to obtain a grasp of the elementary principles of the subject; and the pleasant style in which it is written makes it very readable. F.

A SYSTEM OF QUALITATIVE ANALYSIS FOR THE RARE ELEMENTS. By Arthur A. Noyes and William C. Bray. London: Macmillan and Co. Pp. 536. 21s.

This book presents the results of an experimental investigation carried out during the past 30 years by the authors with the aid of a large number of their associates, first at the Massachusetts Institute of Technology and later at the California Institute of Technology and the University of California. The first part of the book deals with the detection of the various elements. The second is in the nature of a research monograph, and under the title of "Confirmatory Experiments" records the numerous experimental investigations that have been carried out in developing the system of analysis. The groups dealt with are as follows:—The selenium group (Se, As, Ge); the tungsten and tantalum groups (Sb, Sn, W, Mo, V; Ti, Ta, Cb); the gold group (Hg, Au, Pt, Pd); the thallium group (Ag, Tl, Pb); the tellurium and copper groups (Te, Mo, Ir, Rh; Pb, Bi, Cu, Cd); the aluminium group (Cr, U, V, Al, Zn, Be); the nickel and zirconium groups (Mn, Zn, Co, Ni; In, Zr, Hf, Ti); the rare-earth group (Sc, In, Th, Ce, La, Lu); the alkaline earth group (Ba, Sr, Ca, Mg); and the alkali group (Na, Li, K, Rb and Cs). This book should be of the highest value, not only to the professional analyst, but also to the student, to whom it provides a course in advanced inorganic chemistry that will afford him an acquaintance with the chemical properties of the rarer elements, many of which have now become highly important in industry, in analytical practice, and in scientific research. C.A.

A GUIDE TO THE LITERATURE OF CHEMISTRY. By E. J. Crane and A. M. Patterson. New York: J. Wiley and Sons. 1927. Pp. 438. 25s.

No previous attempt has been made on so complete a scale as this to provide a complete guide to what is called the "literature" of chemistry. The term is used, not in the ordinary literary sense but in the special chemical sense, to indicate recorded chemical knowledge, as embodied in books, articles, abstracts, patent specifications, and so forth. The volume deals with books, periodicals, patents, indexes, libraries, etc., discussing the various subjects with knowledge and judgment, and supplements the text by exhaustive international lists of chemical publications of almost every kind. A series of appendices provides a bibliography of articles on chemical literature, symbols and abbreviations used in chemical literature, a list of American libraries of interest to chemists, a bibliography of lists of periodicals, scientific and technical organisations, periodicals of chemical interest, a list of chemical book dealers and publishers, and a select list of chemical books.

Though the authors, as present and past editors of *Chemical Abstracts*, are naturally most familiar with American publications and methods, they have succeeded in maintaining the international outlook, and their comments and judgments are always soundly critical. The service they have rendered is one of the greatest yet done to chemical literature and its students; the amazing mass of information they have collected, its careful and intelligent classification and editing, the clear print and orderly arrangement are features on which they may be warmly congratulated.

Details of the Carbonisation Conference

THE details of the carbonisation conference to be held in Birmingham from February 21 to 24 by the Society of Chemical Industry, the Coke Oven Managers' Association, the Institution of Gas Engineers, and the Institute of Fuel, have now been issued. Among the chairmen of the various sessions will be Dr. G. C. Clayton, member of the board of I.C.I., and Dr. F. A. Freeth, F.R.S., of the headquarters research staff of I.C.I. Among the subjects for discussion will be "A General Review of Low Temperature Carbonisation," by Mr. F. S. Sinnatt, of the Fuel Research Station (on Friday afternoon, February 24).

Key Industry Exemption Orders

Further Extensions to End of Year

THE British Chemical and Dyestuffs Traders' Association announce that the Board of Trade have advised them that the following products, which were exempted from liability to duty up to March 6 next, have been re-exempted for a further period ending December 31, 1928 :—

R Acetone,
Acetone fermentation,
Acetone synthetic,
Acid oxalic,
Amidopyrin,
Ammonium perchlorate,
Barbitone,
Dial,
Didial,
Elbon,
Ethylene bromide,
Ethylene glycol,
Furfural,
Glycol ethers,
Guaiacol carbonate,
Hydroquinone,
R Lead acetate,
Lead tetra-ethyl,
Lipoiodin,
Methyl sulphonal,
Phenacetin,
Phenazone,
Phytin,
Piperazine,
R Potassium hydroxide,
Potassium guaiacol-sulphonate,
Pyramidon-veronal,
Salol,
Sulphonal,
Urea.

The Treasury have also made an order under Section 10 (5) of the Finance Act, 1926, exempting crude cocaine from Key Industry Duty from February 11 to December 31, 1928.

The Board of Trade give notice that representations have been made to them under Section 10 (5) of the Finance Act, 1926, regarding ethyl lactate, R potassium chlorate, and R titanium oxide. Any person desiring to communicate with the Board of Trade with respect to these representations should do so by letter addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, S.W.1, within one month from the date of this notice, February 8, 1928.

The "Blue Book"

The 1928 Electrical Directory and Handbook

THE 1928 edition of *The Blue Book : Electrical Trades' Directory and Handbook*, being the forty-sixth issue of this valuable work of reference, has just been published, and contains certain new featurs which it is believed will greatly enhance its usefulness to those engaged in or desiring to get into touch with firms and persons connected with the electrical industry. The legal digest portion of the handbook section has been replaced by a British geographical section, in which the entries are arranged under counties and towns, which, obviously, facilitates circularising and the arrangement of travellers' itineraries.

Great care has been exercised in the revision of the alphabetical and classified sections (British, Colonial, and foreign). The book contains various tables dealing with the conversion of weights and measures, resistance materials, wires, copper, aluminium, dielectrics, inductive capacities, fusing currents for various wires, resistances of conductors, electrochemical equivalents, thermo-electric values, machinery standardisation rules, regulations regarding workshop and ship lighting, etc., and these also have been revised and amended where necessary. Amongst other new matter is information relating to the Central Scotland and the South East England electricity schemes.

The book is published by Ernest Benn, Ltd., and the price is, as usual, 25s. net.

A New Cellulose Acetate Silk Company

THE announcement this week of the registration of the Cellulose Acetete Silk Co., Ltd., with a capital of £1,250,000, has given rise to some speculation as to what interests are behind the company. For a certain period the Non-Inflammable Film Co. may appoint to the board two directors who must be approved by the other directors. It is understood that among the first directors will be Sir John Horsfall, governing director of John Horsfall and Sons ; Mr. Bertrand Clarke, formerly president of the Tubize Artificial Silk Co. of America, and of the Industrial Rayon Corporation of America ; and Sir Wm. Veno.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published ; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries :—

89 (*Condorin*).—An inquirer, who believes this to be an enamel, probably sodium aluminium antimonate, is anxious to obtain details and references regarding it.

90 (*Water Soluble Perfume*).—"Could you supply us with information as to where we could buy a water-soluble perfume that would work in connection with hypochlorite of soda ?"

River Pollution

Joint Advisory Committee's Investigation Begun

WITH the idea of forming an opinion whether it is desirable to set up, if necessary, by compulsion, special watershed bodies on the lines of the existing river boards, to prevent the pollution of rivers and streams, the Joint Advisory Committee appointed recently by the Minister of Health and the Minister of Agriculture and Fisheries, under the chairmanship of Sir Horace Monro, has heard evidence this week on the question of administrative machinery. The question of amendments of the law to be considered at a a later stage. In a statement issued the committee state :—

"It had been suggested in many quarters that the present polluted state of the rivers is due, at least in part, to failure to administer the existing law, which is in many areas almost a dead-letter to-day, because the bodies entrusted with its administration have not as a rule the special knowledge and resources required to deal adequately with the problem, and because their activities are in any event confined to limited and artificial areas, whereas the problem is influenced by conditions extending over the whole watershed. The view was put forward, that where there were special authorities organised more or less on a watershed basis substantial progress was being made."

Evidence was taken from the West Riding of Yorkshire Rivers Board, the Mersey and Irwell Joint Committee, the Ribble Joint Committee, the Thames and Lee Conservancies, and the Tame Basin Joint Committee. The witnesses were unanimously of the opinion that the proper unit for administration purposes was the watershed. There was some divergence of opinion as to whether land drainage and pollution powers should be combined in the one authority. The general trend of the evidence went to show that results were achieved much more by persuasion and advice than by legal proceedings.

Beet Sugar Company Prosecuted

THE County Magistrates at Nottingham had before them on Saturday, February 4, a case in which the Trent Fishery Board proceeded against the Anglo-Scottish Sugar Beet Corporation, with works at Colwick, alleging the effluent from their factory, was poisonous to fish and to fish food.

It was suggested by a witness for the Fishery Board that if the defendant Corporation would undertake an expenditure of £40,000 the effluent might be rendered comparatively innocuous. Counsel for the Corporation contended that all that was reasonably possible had been done.

Mr. Winning, for the Fishery Board, said the necessary work ought to have been carried out, as the company was being subsidised by the taxpayers, and was making substantial profits. It was alleged that four million gallons of poisonous water had been poured into the river daily, with the result that fish were destroyed in great quantities, their food being extensively poisoned ; also that the effluent's discharge had caused the growth of deleterious fungus along the bed of the river. Technical witnesses for the defence suggested that no process had yet been discovered capable of dealing effectively with effluents from such factories, but that considerable progress was being made, and it was hoped the problem might soon be solved. The further hearing was adjourned until March 3.

From Week to Week

THE AMERICAN CYANAMIDE CORPORATION has, states *Die Metallbörse*, taken over the Muscle Shoals nitrogen plant from the U.S. Government.

THE FIRST EXPORT SHIPMENT of coalite, the smokeless fuel produced by Low Temperature Carbonisation, Ltd., will leave Hull for Denmark in a few days.

AUCKLAND CITY COUNCIL has accepted the tender of the Candy Filter Co., Ltd., of Hanwell, London, of £33,379 for the filtration plant for the new water supply.

WEST'S GAS IMPROVEMENT CO., of Miles Platting, Manchester, has secured a £130,000 contract for a carbonising plant for the Warsaw gasworks against keen German competition.

DR. A. FLECK, manager of the Castner-Kellner alkali works at Wallsend-on-Tyne, lectured to the Castner-Kellner Club and Institute on "The Chemical Industry in National Affairs."

DAMAGE TO A SHED AND CONTENTS was caused by fire at the chemical works of Ernest Newton and Co., Holt Street, Aston, shortly before 8 o'clock on Sunday morning. A jet was employed upon smouldering material all day.

THE SIXTEENTH ANNUAL DINNER of the Finsbury Technical College Old Students' Association will be held at the Engineers' Club, on Friday, March 2. Tickets may be obtained from Mr. H. P. Guy, Hadley, Station Road, New Barnet, Herts.

THE ANNUAL MEETING of the Iron and Steel Institute will be held on May 3–4, at the house of the Institution of Civil Engineers, Great George Street, London, S.W.1, under the presidency of Mr. Benjamin Talbot. The autumn meeting of the Institute will be at Bilbao during the week commencing September 24.

THE VACANCIES ON THE BOARD OF THE CELLULOSE ACETATE SILK CO., LTD., have now been filled by Lord Herbert Scott (a director of Rolls-Royce, Ltd.), Lord Fairfax (chairman of Amalgamated Cotton Mills Trust, Ltd.), Lieut.-Col. N. Seddon Brown (managing director of the same firm), and Sir H. J. Forde (a director of Vickers, Ireland, Ltd.).

AN APPLICATION BY MR. CHARLES BOGIN for an American patent on an improvement in nitrocellulose lacquer compositions was recently rejected because his composition comprised, among other ingredients, "a nitrocellulose solvent boiling below 100 degrees." Only one solvent of this type, acetone, was disclosed, and his claim was rejected as being broader than the invention.

AN INTEREST IN THE BUSINESS of Adam Hilger, Ltd., was acquired by Vickers, Ltd., in 1916. On the conclusion of the war this connection in great part lost its utility for both parties, and an arrangement has now been made whereby the whole of the shares will be held by Mr. F. Twyman, F.R.S., and the widow and children of the late Mr. Otto Hilger. One of the latter, Mr. John Adam Hilger, now becomes a director of the firm.

A SERIOUS OUTBREAK OF FIRE occurred early on the morning of Thursday, February 2, at 104, High Street, Homerton, the premises of H. Miller and Co., gum merchants. There appeared to be an explosion in one of the rooms and almost immediately the whole building was involved. The fire was prevented from spreading to adjoining premises by 22 fire engines and about 180 firemen. Several workmen were injured and the building almost completely destroyed.

PROFESSOR G. BARGER, F.R.S., of the University of Edinburgh, will act as non-resident lecturer in chemistry at Cornell University, U.S.A., under the George Baker Fisher foundation, for the second term of the present session. He will lecture on "Some Applications of Organic Chemistry to Biology." The non-resident lecturers are provided with a private research laboratory, and the University extends the privilege of the department of chemistry to visiting chemists who may wish to carry on research under the direction of the lecturers.

THE WOODALL-DUCKHAM VERTICAL RETORT AND OVEN CONSTRUCTION CO. (1920), LTD., have received an order from Thorncliffe Coal Distillation, Ltd., Sheffield, to build an entirely new central coke oven works at Smithywood, near Sheffield. The plant will be capable of coking approximately 1,500 tons of coal slack per day. It will be complete with a semi-direct recovery plant for the production of neutral sulphate of ammonia, tar plant, benzol plant, coal handling equipment, coke handling and screening plant, steam raising plant and all railway sidings and roadways.

MR. H. C. PARMELEE, editor of *Chemical and Metallurgical Engineering*, New York, who has just been elected secretary of the American Institute of Chemical Engineers, has arranged to visit Europe in April, and while in England hopes to study industrial conditions in the chemical and related industries. He will be accompanied by Mrs. Parmelee. Mr. Parmelee first visited England ten years ago with a party of American technical journalists, the survivors of whom still meet once a year in New York to celebrate a very pleasant visit and to drink the toast of "Anglo-American friendship."

A GERMAN RAILWAY TRUCK containing sulphuric acid, which was being sent from Berlin to Russia, exploded at the station of Rzeszow (Poland) on Monday.

DR. DOUGLAS H. INGALL, principal and head of the Metallurgical Department, County Technical College, Wednesbury, was on Tuesday appointed principal of the Constantine Technical College, Middlesbrough.

SIR HUGH BELL returned on Saturday, February 4, from Egypt, where he was present at the opening of a bridge built over the Nile at Omdurman by Dorman, Long and Co., of which firm he is vice-chairman.

PROFESSOR W. P. WYNNE'S obituary notice of the late Dr. A. W. Crossley, which appeared in the December, 1927, issue of the *Journal of the Chemical Society*, has been reprinted by the Society in pamphlet form. The notice contains a portrait of Dr. Crossley.

MAJOR VICTOR LEFEBURE gave a lecture on "Chemical Warfare" at the Royal United Services Institution, London, on Wednesday. With regard to future developments, he said that if some means of agreed restriction could be found, the wisdom of intensive development was to be doubted.

THE WELLCOME CHEMICAL RESEARCH LABORATORIES, of 6, King Street, Snow Hill, London, have sent us copies of seven papers published in 1926–27 by various members of the research staff. The papers deal with organic and analytical chemistry, and with the chemistry of the alkaloids.

RECENT WILLS INCLUDE:—Mr. George Horace Percival, of Bombay, of the staff of Brunner, Mond and Co. (India), Ltd., £4,539.—Sir Arthur Francis Pease, a director of the National Benzole Co., and formerly chairman and managing director of Pease and Partners, Ltd., £113,971 (net personalty £103,765).

SALES OF NITRATE OF SODA reported by the Producers' Association since the introduction of free selling up to January 15 amounted to 2,730,596 metric tons, including 103,201 tons disposed of for delivery in the 1928-29 nitrate year. It is understood that further sales have been effected at prices ranging from 16s. to 17s. 2d. per metric quintal, according to delivery dates.

DR. J. J. FOX, of the Government Laboratory, and Dr. W. Rosenhain, of the National Physical Laboratory, have been elected members of the Royal Institution. Among recent gifts to the Institution are the only surviving part of the original manuscript of Faraday's *Chemical Manipulation*, given by Mr. Robert Mond, and the first sugar syrup synthesised from carbon dioxides, given by Professor E. C. C. Baly.

IN A PAPER on "Chemistry in the Service of India" before the Indian Science Congress on January 6, Dr. Gilbert Fowler emphasised the need for the wider application of chemistry to Indian industries and advised chemical students to start small industries on their own account. Until an increasing number of Indian students of chemistry were able to earn a living outside of Government appointments, or subordinate positions in commercial concerns, chemical science would not be really applied to the service of the country in any effective way.

UNIVERSITY NEWS.—*Edinburgh:* The status of University lecturer was conferred upon Dr. Alexander Lauder, head of the Chemistry Department in the Edinburgh and East of Scotland College of Agriculture, in recognition of the responsible part which he has long taken in the teaching of chemistry in the curricula for degrees in agriculture and forestry.—*Hull:* The Council of University College of Hull has appointed, as Professor of Chemistry, Mr. F. G. Tryhorn, A.I.C., senior lecturer in chemistry in the University of Sheffield.—*London:* The degree of Ph.D. has been conferred on C. D. Langford and W. W. Webb (chemistry), E. O. Salant (physical chemistry), C. F. Flint (agricultural chemistry), and the degree of D.Sc. (biochemistry) has been conferred on H. G. Reeves.—*Durham:* Dr. W. A. Waters has joined the staff of the Durham College as lecturer in chemistry.—*Oxford:* In Congregation, on February 7, a decree was passed to authorise the expenditure from the Government grant of a sum not exceeding £2,800 on an addition to Dr. Lee's Department of Chemistry and the University Museum to provide an additional workshop and laboratory.

Obituary

PROFESSOR ALOIS SCHWARTZ, aged 74, founder of the "Oesterreichischen Vereins für Eis- und Kälte-Industrie" and of the Austrian "Zeitschrift für Eis- und Kälte-Industrie." He published numerous papers on the brewing and refrigeration industries.

PROFESSOR HENDRIK ANTOON LORENTZ, professor of experimental and theoretical science at the University of Leyden, Holland, on Saturday, February 4, aged 74. He was one of the most distinguished mathematical physicists of his time. His work on the relation between the refractive index and the density of substances had important bearings on the relation of physical properties to chemical constitution. He was a Nobel Prizeman and a foreign member of the Royal Society of London, from which he received the Rumford and Copley Medals.

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The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

282,947. MERCAPTOTHIAZOLES, METHOD OF PREPARING. L. B. Sebrell, Cuyahoga Falls, and J. Teppema, Tallmadge, Summit Co., Ohio, U.S.A. Application date, November 9, 1926.

Arylmercaptothiazoles are obtained by causing a material having a nitro group and a chlorine or sulphur atom in ortho position to one another in the aryl ring to react with a basic hydrosulphide or an aqueous solution of a basic sulphide in the presence of hydrogen sulphide and carbon disulphide, and at a temperature of 60°–90° C. and a pressure up to 250 lb. per square inch. In an example of the production of 2-mercaptobenzothiazole, ortho-nitrochlorbenzene is suspended in a solution of sodium sulphide saturated with hydrogen sulphide. The mixture is warmed, and hydrogen sulphide saturated with carbon bisulphide is passed through it. The mixture is steam distilled to remove by-products or raw materials, and then acidified. The precipitated product is relatively pure. In a modification, the starting material may be diortho-dinitro-diphenyl-disulphide, which is obtained by treating orthonitrochlor-benzene with sodium polysulphide. A full description is given of the reactions involved. The products are employed as vulcanisation accelerators.

283,072. ALUMINA AND PHOSPHATES FROM ALUMINIUM PHOSPHATES, PROCESS FOR THE RECOVERY OF. L. Mellersh-Jackson, London. From Rhenania Kunheim Verein Chemischer Fabriken A.G., 10, Reichstagsufer, Berlin, N.W.7, Germany. Application date, June 24, 1927.

Aluminium phosphate is mixed with alkaline earth metal compounds (oxides, carbonates, sulphates and chlorides) and alkali salts, and subjected to a glowing process at 900° C. The product contains alkaline aluminate which is dissolved out with water, and an alkali calcium phosphate which is insoluble in water, but soluble in citrate. Thus material is dried and ground and forms a good phosphate fertiliser. The glowing process is preferably conducted in the presence of steam.

283,089. ALKALI HYDRIDES, PRODUCTION OF. Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler, H. Freudenberg and H. Kloepfer, 7.9, Weissfrauenstrasse, Frankfort-on-Main, Germany. Application date, September 28, 1927. Addition to 276,313.

Specification No. 276,313 (see THE CHEMICAL AGE, Vol. XVII, p. 373) describes the production of alkali metal hydrides by causing hydrogen to react above 200° C. on alkali metals distributed in diluents such as common salt, iron powder, sodium carbonate, wood charcoal, or alkali hydride itself. In this invention, the alkali metal is introduced in a finely divided state into the reaction space with or without diluents. The alkali metal may be sprayed by means of hydrogen into a chamber which may contain the diluent.

283,087. LEUCITE AND LIKE MINERALS, TREATMENT OF. Peter Spence and Sons, Ltd., T. J. I. Craig, Manchester Alum Works, Holland Street, Manchester. Application date, June 29, 1926.

Leucite is digested with nitric acid to produce a neutral or nearly neutral solution, which is then cooled until most of the potassium nitrate crystallises out. The liquor is again treated with nitric acid and cooled to crystallise aluminium nitrate, and the mother liquor is used again for digesting fresh material. By using the liquor from previous operations, potassium nitrate can be crystallised in practically pure condition and in quantity equivalent to that of the material treated. The aluminium nitrate crystals subsequently obtained are washed with nitric acid, which may afterwards be used for treating fresh material.

The nitrate solution is preferably purified from iron before crystallising the potassium nitrate. The liquor is made somewhat basic by evaporating some of the nitric acid, or by adding alumina or potash. The iron is then precipitated as basic ferric potassium sulphate in the presence of finely ground leucite residue, by means of aluminium or potassium sulphate. Alternatively, the basic liquor may be treated with hydrated oxides of manganese, tin, or antimony, which removes the iron oxide in the ferric condition. In an alternative method, the mixed solution of nitrates may first be cooled to a temperature at which both potassium and aluminium nitrates crystallise. The temperature is then raised to re-dissolve any crystallised aluminium nitrate, leaving pure potassium nitrate. The admixed aluminium nitrate crystals may also be dissolved out by treating the saturated solution of potassium nitrate.

283,232. FIXATION OF ATMOSPHERIC NITROGEN. J. Brightmore, Mayfield House, Tideswell, Derbyshire. Application date, July 6, 1926.

A mixture of hydrated lime and calcspar in finely divided condition is treated with superheated steam and preheated air at a temperature of 900° F. and pressure of 4—5 atmospheres. The mixture is also subjected to a direct or alternating current at 80 volts applied to suitable electrodes. The mixture is then subjected alternately to hot and cold air, and to an electric current at 90 volts. In the first stage copper and zinc are employed as catalysts, and in the second stage nickel and copper are employed as catalysts. The process may be supplemented by the use of an electric flame arc.

283,259. DISTILLATION OF CARBONACEOUS SUBSTANCES. W. E. Evans, London. From Carlshütte Akt.-Ges., für Eisengiesserei und Maschinenbau Altwasser, Waldenburg, Germany. Application date, October 2, 1926.

The process is for the low temperature distillation and subsequent gasification of coal and similar substances by means of a heating medium which passes transversely through the charge. The heating medium is first passed through the coke in the cooling zone, and then through a heat exchanger in the outlet chamber of the distillation zone. It is then used directly for drying and after again heating, for distillation. Steam may be used as the heating medium together with the small proportion of gases produced in the distillation process. In this process the drying can be carried out at a temperature above 270° C. without any tar being produced. The plant, which it is claimed is considerably simplified in comparison with that employed in other processes, is described in detail.

283,267. ACTIVATION OF CARBON, PROCESS FOR—AND THE PRODUCTION OF CARBON BISULPHIDE. W. Carpmael, London. From I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, October 5, 1926.

Carbon is activated by treating with sulphur vapour or a compound yielding sulphur vapour by decomposition at a temperature of 800°—1000° C. The carbon is thereby activated, and carbon bisulphide is formed. It is possible to produce active carbon of predetermined properties by selecting the carbon used as starting material, the size of the grain, the temperature, the duration of the action, and the concentration of the sulphur vapour. The latter may be varied by mixing with inert gases. In an example, pinewood charcoal previously carbonised at 500° C. is treated at 900° C. with sulphur vapour until about half has been converted into carbon bisulphide. The remainder is a decolorizing carbon having a density of 100—120 grams per litre. By continuing the activation process a decolorising carbon is obtained equal to highly active steam carbon. The heating may be effected by external means, or by superheating the sulphur vapour.

283,269. RECOVERING LIQUID PRODUCTS FROM COAL, PROCESS FOR. H. Novák, 36, Jeronymova, Prague VII, Czecho-Slovakia. A. Brod, 541, Hlavní trída, Karlsbad, Czecho-Slovakia. Application date, October 5, 1926.

Coal is converted into simpler substances by gradual heating up to 500° C., the formation of gaseous substances being prevented. Some of the low melting solid and liquid products can be converted by further heat treatment into low boiling

(*Continued on page* 127.)

(*Continued from page* 126)

motor fuels resembling benzine. The coal is heated with an aromatic high boiling hydrocarbon liquid in an autoclave, the temperature being raised gradually to 500° C. The low boiling products are removed and condensed, and the aromatic high boiling hydrocarbon liquid is then distilled off and condensed. Any high boiling oils remaining in the autoclave are cracked above 380° C. in the presence of the residual solids, and the latter are then dry distilled up to 500° C. It is found that solid aromatic hydrocarbons such as naphthalene, anthracene, or phenanthrene, are not suitable for this process owing to their sublimation and deposition in the valves, etc. Benzol and its homologues and fractions boiling below 230° C. obtained by distilling anthracite coal tar are not suitable owing to their decomposition at high temperature. The substances preferred are 1 : 6-dimethylnaphthalene and 1-methylnaphthalene, or other alkyl naphthalenes which do not decompose at high temperatures. It is not necessary to use the pure substances, but mixtures obtained in the liquid fractions of anthracite coal tar and generator tar may be used. An example is given of the treatment of a mixture of Bohemian brown coal and anthracene oil in an autoclave at a pressure of 25 atmospheres according to the process described above. The products consisted of benzine 8 per cent., oils 10 per cent., aliphatic tar 26·8 per cent., semi-coke 43·4 per cent., water 7·8 per cent., gases, etc., 4 per cent. The oils are further cracked in the next treatment of coal.

283,383. Refining Oil, Apparatus for. E. C. R. Marks, London. From Simplex Refining Co., 200, Bush Street, San Francisco, Cal., U.S.A. Application date, April 20, 1927.

In the refining of oils under high vacuum, *e.g.*, below 25 mms. of mercury, the movement of the oils by mechanical pumps presents difficulties due to the leakage of air into the system through packed joints which it is not possible to keep entirely tight. The air is liable to combine with the oil to produce undesirable compounds, and also gaseous products which must be removed by the vacuum pumps. In this invention, oil is lifted by maintaining a static head on the lower end of the column of oil, and lightening the column by injecting steam into it. The oil is refined by passing the vapour upwards through a closed space, and a body of cooled oil is contained in a loop which includes this space. Steam is introduced into the lower part of the loop so that the oil is lifted and delivered into the top of the closed space. The oil flows downwards through this space in counter-current to the oil vapour, which is thus condensed and the steam released. The steam is withdrawn and condensed by an increase of pressure. The apparatus is described.

Note.—Abstracts of the following specifications which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention: —256,964 and 257,256 (I. G. Farbenindustrie Akt.-Ges.) relating to destructive hydrogenation of coal, etc., see Vol. XV, pp. 403 and 433; 258,576 (I. G. Farbenindustrie Akt.-Ges.) relating to purification of crude benzol, see Vol. XV, p. 502; 263,816 (I. G. Farbenindustrie Akt.-Ges.) relating to monoazo dyestuffs capable of being chromed, see Vol. XVI, p. 239; 266,697 (I. G. Farbenindustrie Akt.-Ges.) relating to tanning agents, see Vol XVI, p. 468; 267,547 (I. G. Farbenindustrie Akt.-Ges.) relating to treatment of titanium ores, see Vol. XVI, p. 515; 268,716 (F. Krupp Akt.-Ges.) relating to iron and steel alloys, see Vol XVII, p. 7 (Metallurgical Section); 271,482 (K. Muller) relating to synthetic ammonia, see Vol. XVII, p. 115; 272,155 (Soc. Chimique de la Grande Paroisse, Azote et Produits Chimiques) relating to formaldehyde, see Vol. XVII, p. 153; 273,666 (I. G. Farbenindustrie Akt.-Ges.) relating to production of chromates, see Vol. XVII, p. 221; 276,353 (I. G. Farbenindustrie Akt.-Ges.) relating to azo dyestuffs, see Vol. XVII, p. 373; 275,147 (Fabrique de Produits Chimiques Rohner Soc. Anon. Pratteln) relating to dyestuffs, see Vol. XVII, p. 311; 278,370 (I. G. Farbenindustrie Akt.-Ges.) relating to extraction of argillaceous materials with acids, see Vol. XVII, p. 515.

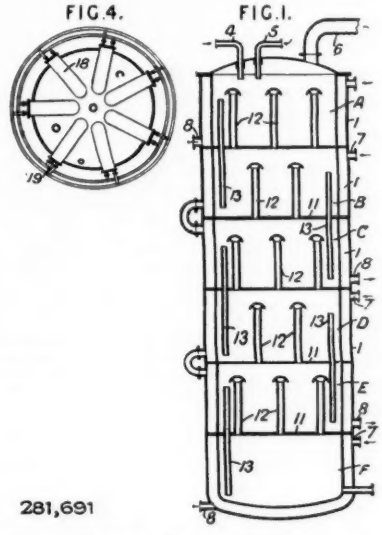
International Specifications not yet Accepted

281,690. Organo-arsenic Compounds. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 2, 1926.

The N-substituted benziminazolone-arsinic acids described in specification 256,243 (see The Chemical Age, Vol. XV, p. 356) are reduced with hydrosulphite to obtain N-substituted arseno-benziminazolones.

281,691. Concentrating Nitric Acid. H. Frischer. 91, Kerpenerstrasse, Lindenthal, Cologne, Germany. International Convention date, December 6, 1926.

Dilute nitric acid is heated in stages with a water-absorbent medium such as sulphuric acid, the temperature being increased as the concentration increases. A number of superposed heating vessels A . . . F are enclosed by a jacket 1, and dilute nitric acid and concentrated sulphuric acid are supplied by pipes 4, 5. The mixture overflows through pipes 13 to the chamber below, and vapour passes upwards through pipes 12, finally escaping through pipes 6. Steam enters the jacket round section F at 160° C, sections D, E, at 145°–150° C., and sections A, B, at 105° and 120° C. Instead of the heating jacket 1, radial heating tubes 18, Fig. 4, may be provided, steam being admitted at 19.



281,703. Organo-arsenic Compounds. I. G. Farbenindustrie Akt.Ges., Frankfort-on-Main, Germany. International Convention date, December 2, 1926. Addition to 256,243 (see The Chemical Age, Vol. XV, p. 356).

A diazo compound obtained from an aminobenziminazolone substituted at a nitrogen of the heterocyclic ring by an alkyl or alkylene group is treated with arsenious acid to obtain N-alkyl- and N-alkylene-3 : 4-benziminazolone-arsinic acids. An example is given of the production of 3 : 4-benz-(3-N-methyl)-iminazolone-arsinic acid and 3 : 4-benz-(4-N-ethyl or propyl)-iminazolone-arsinic acid.

281,713. Dyes. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, December 4, 1926.

These dyes are obtained by coupling a 2 : 4-diaminobenzene-1-sulphonic acid, acidylated in the 4-position, or a nuclear substitution derivative, with a 1-aryl-5-pyrazolone, and give yellow shades, fast to light, on animal fibres. The acidyl group may be derived from formic, acetic, an aryl-carboxylic, an arylsulphonic, carbonic, oxalic, or phthalic acid, or from a carbonic acid ester.

281,717. Urea-aldehyde Condensation Products. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, December 4, 1926.

Porous condensation compounds of a urea with an aldehyde are obtained by first condensing to a stage beyond the methylol-urea phase, and then polymerizing in presence of a catalyst such as an acid or a salt. Examples are given.

282,004. Anthraquinone Derivatives. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 9, 1926. Addition to 271,884. (See The Chemical Age, Vol. XVII, p. 134.)

Bz1 : Bz2-benz-benzanthrones are obtained by ring closure of benzylidene-anthrones with aluminium chloride. These compounds or derivatives thereof are oxidised, *e.g.*, with chromic acid in glacial acetic acid, to obtain 1-(2¹-carboxy-

phenyl)-anthraquinones. Bz1 : Bz2-benz-2 : 6 - dichlorbenzanthrone and Bz1 : Bz2-benz-benzanthrones substituted in the benz-residue may also be used as starting materials.

Latest Notifications.

284,280. Process for sulphonation of oils or fatty matters. Böhme Akt.-Ges., H. T. January 27, 1927.

284,322. Ammonium phosphate fertiliser composition and method of making the same. American Cyanamid Co. January 28, 1927.

284,281. Boiler with heating or cooling apparatus. I.G. Farbenindustrie Akt.-Ges. January 27, 1927.

284,327. Fuller's earth treating process. Rosenbaum, R. R. January 29, 1927.

284,242. Process for the manufacture of derivatives of the anthraquinone series containing nitrogen. I.G. Farbenindustrie Akt.-Ges. January 25, 1927.

284,288. Manufacture of vat dyestuffs. I.G. Farbenindustrie Akt.-Ges. January 27, 1927.

284,247. Process for the manufacture of water-insoluble azo dyestuffs. I.G. Farbenindustrie Akt.-Ges. January 25, 1927.

284,272. Manufacture and production of methylol ureas. Walter, Dr. G. November 28, 1925.

284,295. Manufacture of coloured Portland cement. Amme-Luther Werke Braunschweig der Miag Mühlenbau und Industrie Akt.-Ges. January 27, 1927.

284,298. Manufacture of cellulose esters. I.G. Farbenindustrie Akt.-Ges. January 27, 1927.

284,345. Process and apparatus for the continuous transformation into light hydrocarbons of the heavy hydrocarbons from petroleums and the like. Carroll, H. January 28, 1927.

284,352. Manufacture of accumulator plates. I.G. Farbenindustrie Akt.-Ges. January 28, 1927.

284,588. Process for concentrating aqueous acetic acid. I.G. Farbenindustrie Akt.-Ges. January 29, 1927.

284,589. Manufacture of artificial masses. Soc. of Chemical Industry in Basle. January 29, 1927.

284,614–5. Manufacture of acid dyestuffs of the phenonaphthosafranine series. Geigy, Akt.-Ges., J. R. January 31, 1927.

Specifications Accepted with Date of Application

255,804. Active silica, Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. July 23, 1925.

256,229. Organic compounds, Manufacture of solutions of. I.G. Farbenindustrie Akt.-Ges. August 1, 1925.

258,608. Aromatic hydrocarbons, Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. October 12, 1925.

258,887. Effecting catalytic reactions for the production of ammonia, Method of. Lazote Inc. September 24, 1925.

260,253. Urea and formaldehyde, Manufacture and production of condensation products of. I.G. Farbenindustrie Akt.-Ges. October 21, 1925.

260,275. Aluminium alloys, Process of improving. T. Goldschmidt Akt.-Ges. October 21, 1925.

260,588 and 263,494. Vat dyestuffs of the anthraquinone series, Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. October 29 and December 22, 1925.

265,224. Isatins and n-arylsulpho compounds thereof, Manufacture of. I.G. Farbenindustrie Akt.-Ges. January 28, 1926.

266,358. Arylamines, Manufacture of condensation products of. P. Haller and H. Kappeler. February 17, 1926.

269,378. Urea, Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. February 19, 1926.

270,711. Chromyl chloride, Process for the production of. Permutit Akt.-Ges. May 5, 1926.

274,099. Compounds of nitrogen and oxygen from ammonia, Process for the production of. N. Caro and A. R. Frank. July 8, 1926.

277,697. Alumina, Manufacture of. J. C. Séailles. September 18, 1926.

278,726. Vat dyestuffs, Process for purifying. Soc. of Chemical Industry in Basle. October 6, 1926.

278,761. Chlorine substitution products of 1-amino-2 : 4-dimethylbenzene, Manufacture of. I.G. Farbenindustrie Akt.-Ges. October 11, 1926.

279,022. Dry and non-hydroscopic fertiliser from vinasses of distilleries and sugar factories. Selbi. (*Soc. d'Exploitation de Licences de Brevets Industriels.*) October 16, 1926.

279,790. Oxidation of alkyl aryl substituted dithiocarbamic acids to the corresponding disulphides. Silesia Verein Chemischer Fabriken. October 30, 1926.

279,796. Cellulose esters of inorganic acids, Manufacture of. I.G. Farbenindustrie Akt.-Ges. October 26, 1926.

283,143. Acetic acid, Process for the manufacture of. Chemische Fabrik auf Actien (*vorm E. Schering*). April 7, 1927.

283,979. Dyestuffs containing chromium, Manufacture and production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt-Ges.*) July 17, 1926.

283,994. Aluminium-nickel-silver alloys, and the manufacture thereof. R. K. Hezlet and R. Genders. October 16, 1926.

284,035. Benzanthrones and their derivatives, Production of. British Alizarine Co., Ltd., W. H. Dawson, C. W. Soutar, and J. Anderson. November 3, 1926.

284,087. Finely divided metals from metallic carbonyls, Manufacture and production of. J. Y. Johnson. (*I.G. Farbenindustrie Akt.-Ges.*) February 4, 1927. Addition to 269,677.

284,098. Manganese ores, Treatment of. S. G. S. Dicker. (*J. C. Wiarda and Co.*) March 1, 1927.

284,131. Disintegrating liquid alumina, Process of. A. L. Mond. (*Metallbank und Metallurgische Ges.*) June 7, 1927.

Applications for Patents

Auchinachie, P. P. J., and Jenks, W. Manufacture of synthetic ammonia. 3,240. February 1.

Bennett, N., Dodd, H., and Sprent, W. C. Production of aromatic acid chlorides. 3,279. February 2.

Boehringer, A., and Boehringer Sohn, C. H. Manufacture of maleic acid, etc. 3,483. February 3. (Germany, February 16, 1927.)

Boehringer, A., and Boehringer Sohn, C. H. Process for preparing tetrazoles. 3,484. February 3. (Germany, February 11, 1927.)

British Celanese, Ltd., Ellis, G. H., Mosby, D. H., and Olpin, H. C. Treatment of cellulose derivatives. 2,891, 2,892, 2,893, 2942. January 30.

British Celanese, Ltd., Hall, J., Kirk, E. W., Olpin, H. C., and Reeves, G. Manufacture of basic derivatives of aromatic series. 3,030. January 31.

Bronn, J. I., Concordia Bergbau Akt.-Ges., and Fischer, G. Manufacture of nitrates. 3,025. January 31.

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of organic antimony compounds. 3,229. February 1.

Claytor, R. S., Sir J. P. Fry, Harper, A. R., and Williams, W. M. Production of activated carbon. 3,222. February 1.

Clutterbuck, W. H., and Harding Chemical Co., Ltd. Process for preventing settling-out of paste dyestuffs. 3,134. February 1.

Dyson, G. M., and Renshaw, A. Manufacture of ureas, thioureas, etc. 3,205. February 1.

Goodrich, R. J., and Rintelman, W. L. Process of preparing ortho-ortho-dicarboxyl-diphenyl-diamino-anthraquinones. 3042. January 31.

Hansen, F. J. M. Process for hydrogenating hydrocarbons, etc. 3,348. February 2. (Switzerland, February 2, 1927.)

Henderson, B. W., Imperial Chemical Industries, Ltd., and Percival, J. G. Production of aromatic acid chlorides. 3,278. February 2.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Low-temperature carbonisation for fuels. 2,910. January 30.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of vat dyestuffs. 3,187, 3,188. February 1.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of nitrogenous vat dyestuffs. 3,555. February 4.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Process for converting salts, etc., into spherical masses. 3,556. February 4.

I.G. Farbenindustrie Akt.-Ges. Process for concentrating aqueous acetic acid. 2,924. January 30. (Germany, January 29, 1927.)

I.G. Farbenindustrie Akt.-Ges. Process for dyeing artificial silk. 3,074. January 31. (Germany, February 2, 1927.)

I.G. Farbenindustrie Akt.-Ges. Production of phosphorus, etc., cement. 3,345. February 2. (Germany, March 19, 1927.)

I.G. Farbenindustrie Akt.-Ges. Manufacture of benzanthrone derivatives. 3,572. February 4. (Germany, March 9, 1927.)

Imperial Chemical Industries, Ltd. Production of ethyl alcohol. 2,864. January 30.

Imperial Chemical Industries, Ltd. Hydrogenation of carbonaceous materials. 2,865. January 30.

Imperial Chemical Industries, Ltd. Production of hydrogen, etc. 2,991. January 31.

Imperial Chemical Industries, Ltd. Manufacture of fuse-heads for electrical firing. 3,328. February 2.

Imperial Chemical Industries, Ltd. Degreasing metal, etc. 3,541. February 4.

Jones, F. W. Salisbury-. Distillation of coal. 3,577. February 4.

Laing, B., and Nielsen, H. Distillation of carbonaceous materials. 3,421. February 3. (December 4, 1926.)

Laing, B., and Nielsen, H. Distillation of carbonaceous materials. 3,422. February 3. (February 21, 1927.)

Slade, R. E. Production of ethyl alcohol. 2,864. January 30.

Soc. Anon. des Distilleries des Deux Sevres. Manufacture of acetic acid. 2,926. January 30. (France, November 10, 1927.)

Soc. Anon. des Distilleries des Deux Sevres. Manufacture of acetic acid. 3,452. February 3. (France, November 29, 1927.)

Soc. of Chemical Industry in Basle. Manufacture of artificial masses. 2,925. January 30. (Switzerland, January 29, 1927.)

Soc. of Chemical Industry in Basle. Manufacture of dyestuffs. 3,349. February 2. (Switzerland, February 2, 1927.)

Watts, H. G. Hydrogenation of carbonaceous materials. 2,865. January 30.

Winzer, C. B. Distillation of coal. 3,577. February 4.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £30 per ton ; powder, £32 per ton ; extra fine powder, £34 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations ; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d ; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton ; granulated, £19 per ton ; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 2d. to 2s. 7d. per gall. ; pyridinised industrial, 2s. 4d. to 2s. 9d. per gall. ; mineralised, 3s. 3d. to 3s. 7d. per gall. ; 64 O.P., 1d. extra in all cases ; prices according to quantity as from January 1, 1928.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength ; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included ; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6½d. to 7¾d. per lb. Crude 60's, 2s. 3½d. to 2s. 5d. per gall. prompt ; lower for forward delivery.

ACID CRESYLIC 99/100.—2s. 11d. to 3s. per gall. 97/99.— 2s. 7d. to 2s. 10d. per gall. Pale, 95%, 2s. 3d. to 2s. 6d. per gall. Dark, 95%, 2s. 1d. to 2s. 3d.

ANTHRACENE.—A quality, 2½d. per unit. 40%, £5 per ton.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7¾d. to 8d. per gall.

BENZOLE.—Prices at works ; Crude, 8½d. to 9d. per gall. ; Standard Motor, 1s. 1d. to 1s. 2d. per gall. ; 90%, 1s. 2d. to 1s. 3d. per gall. ; Pure, 1s. 5d. to 1s. 6d. per gall.

TOLUOLE.—90%, 1s. 4d. to 1s. 8d. per gall. Firm. Pure, 1s. 6d. to 1s. 11d. per gall.

XYLOL.—1s. 3d. to 1s. 8d. per gall. Pure, 1s. 9d. per gall.

CREOSOTE.—Cresylic, 20/24%, 10d. to 11d. per gall. ; middle oil, 8d. to 9d. per gall. Heavy, 8½d. to 9d. per gall. Standard specification, 7¼d. to 7½d. ex works. Salty, 7d. per gall., less 1¼%.

NAPHTHA.—Crude, 9d. to 10d. per gall. Solvent 90/160, 1s. to 1s. 1d. per gall. Solvent 95/160, 1s. 3d. to 1s. 4d. per gall. Solvent 90/190, 10d. to 1s. 2d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed or hot pressed, £8 per ton.

NAPHTHALENE.—Crystals, £13 to £13 10s. per ton. Quiet. Flaked, £14 to £15 per ton, according to districts.

PITCH.—Medium soft, 67s. 6d. to 80s. per ton, f.o.b., according to district. Nominal.

PYRIDINE.—90/140, 5s. 6d. to 6s. 6d. per gall. 90/180, 3s. 6d. to 5s. per gall. Heavy, 3s. to 3s. 6d. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated :

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 8½d. per lb.

ACID GAMMA.—4s. 6d. per lb.

ACID H.—3s. per lb.

ACID NAPHTHIONIC.—1s. 6d. per lb.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb.

ACID SULPHANILIC.—8½d. per lb.

ANILINE OIL.—8d. per lb. naked at works.

ANILINE SALTS.—8d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—5½d. per lb.

m-CRESOL 98/100%.—2s. 3d. to 2s. 5d. per lb.

p-CRESOL 32/34° C.—2s. 3d. to 2s. 5d. per lb.

DICHLORANILINE.—1s. 10d. per lb.

DIMETHYLANILINE.—1s. 11d. per lb.

DINITROBENZENE.—8½d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—10d. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb.

B-NAPHTHYLAMINE.—3s. per lb.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 8d. per lb.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb.

R. SALT.—2s. 2d. per lb.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—8½d. per lb.

p-TOLUIDINE.—2s. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.

N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.

CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.

IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.

WOOD TAR.—£4 to £5 per ton.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality ; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¼d. to 6¼d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPHONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 6d. per lb.

ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. to 1s. 4d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
ACID, CAMPHORIC.—19s. to 21s. per lb.
ACID, CITRIC.—1s. 8d. to 1s. 9d. per lb., less 5%.
ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.
ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
ACID, SALICYLIC, B.P. PULV.—1s. 2d. to 1s. 3½d. per lb.; Technical.—11½d. to 11¾d. per lb.
ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.
ACID, TARTARIC.—1s. 3½d. per lb., less 5%.
ACETANILIDE.—1s. 6d. to 1s. 9d. per lb. for quantities.
AMIDOL.—7s. 6d. to 9s. per lb., d/d.
AMIDOPYRIN.—8s. to 8s. 3d. per lb.
AMMONIUM BENZOATE.—3s. to 3s. 3d. per lb., according to quantity. 18s. per lb. ex Gum.
AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated, 1s. per lb.
ATROPINE SULPHATE.—9s. per oz.
BARBITONE.—5s. 9d. to 6s. per lb.
BENZONAPHTHOL.—3s. 3d. per lb. spot.
BISMUTH CARBONATE.—11s. 4d. to 11s. 7d. per lb.
BISMUTH CITRATE.—10s. 4d. to 10s. 7d. per lb.
BISMUTH SALICYLATE.—10s. 7d. to 10s. 10d. per lb.
BISMUTH SUBNITRATE.—9s. 7d. to 9s. 10d. per lb.
BISMUTH NITRATE.—6s. 7d. to 6s. 10d. per lb.
BISMUTH OXIDE.—14s. 7d. to 14s. 10d. per lb.
BISMUTH SUBCHLORIDE.—14s. 4d. to 14s. 7d. per lb.
BISMUTH SUBGALLATE.—8s. 7d. to 8s. 10d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.
BISMUTHI ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 1½d. per lb.; 12 W. Qts. 1s. 0½d. per lb.; 36 W. Qts., 1s. per lb.
BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
BROMIDES.—Ammonium, 1s. 11½d. to 2s. per lb.; potassium, 1s. 8½d. to 1s. 8¾d. per lb.; sodium, 1s. 10½d. to 1s. 11d. per lb.; granulated ½d. per lb. less; all spot. Large quantities at lower rates.
CALCIUM LACTATE.—1s. 2d. to 1s. 3d. per lb.
CAMPHOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.
CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.
CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
CREOSOTE CARBONATE.—6s. per lb.
ETHERS.—S.G. ·730—1s. 1d. to 1s. 2d. per lb., according to quantity; other gravities at proportionate prices.
FORMALDEHYDE.—£39 per ton, in barrels ex wharf.
GUAIACOL CARBONATE.—4s. 9d. to 5s. per lb.
HEXAMINE.—2s. 3d. to 2s. 6d. per lb.
HOMATROPINE HYDROBROMIDE.—30s. per oz.
HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.
HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.
HYDROQUINONE.—3s. 10d. per lb., in cwt. lots.
HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
IRON AMMONIUM CITRATE.—B.P., 2s. 3d. to 2s. 6d. per lb. Green, 2s. 6d. to 2s. 11d. per lb.; U.S.P., 2s. 4d. to 2s. 7d. per lb.
IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.
MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.
MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.
MENTHOL.—A.B.R. recrystallised B.P., 16s. 6d. per lb. net for January delivery; Synthetic, 9s. to 10s. per lb.; Synthetic detached crystals, 9s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.
MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10s. to 5s. 11d. per lb. Special prices for larger quantities.
METHYL SALICYLATE.—1s. 5d. to 1s. 9d. per lb.
METHYL SULPHONAL.—9s. to 9s. 3d. per lb.
METOL.—9s. to 11s. 6d. per lb. British make.
PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.
PARALDEHYDE.—1s. 1d. to 1s. 4d. per lb.
PHENACETIN.—2s. 6d. to 2s. 9d. per lb.
PHENAZONE.—4s. to 4s. 3d. per lb.
PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.
POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—94s. per cwt., less 2½ per cent.
POTASSIUM CITRATE.—B.P.C., 1911, 1s. 8d. to 1s. 11d. per lb.; U.S.P., 2s. 1d. to 2s. 4d. per lb.
POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.
POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.
POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.
QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins.
RESORCIN.—2s. 10d. to 3s. per lb., spot.
SACCHARIN.—55s. per lb.; in quantity lower.
SALOL.—2s. 4d. per lb.
SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.
SODIUM CITRATE, B.P.C., 1911.—1s. 10d. to 2s. 1d. per lb., B.P.C., 1923—2s. 2d. to 2s. 3d. per lb. for 1-cwt. lots. U.S.P., 2s. 1d. to 2s. 3d. per lb., according to quantity.
SODIUM FERROCYANIDE.—4d. per lb., carriage paid.
SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.
SODIUM NITROPRUSSIDE.—16s. per lb.
SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.
SODIUM SALICYLATE.—Powder, 1s. 7d. to 1s. 9d. per lb. Crystal, 1s. 8d. to 1s. 10d. per lb.
SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb.
SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.
SULPHONAL.—6s. 9d. to 7s. per lb.
TARTAR EMETIC, B.P.—Crystal or powder, 2s. to 2s. 2d. per lb.
THYMOL.—Puriss., 10s. to 10s. 3d. per lb., according to quantity. Firmer. Natural, 14s. 3d. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.
AUBEPINE (EX ANETHOL).—11s. per lb.
AMYL ACETATE.—2s. per lb.
AMYL BUTYRATE.—4s. 9d. per lb.
AMYL SALICYLATE.—2s. 9d. per lb.
ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.
BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—2s. per lb.
BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.
BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.
BENZYL BENZOATE.—2s. 6d. per lb.
CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb.
COUMARIN.—10s. per lb.
CITRONELLOL.—13s. 6d. per lb.
CITRAL.—8s. 3d. per lb.
ETHYL CINNAMATE.—6s. per lb.
ETHYL PHTHALATE.—3s. per lb.
EUGENOL.—8s. 3d. per lb.
GERANIOL (PALMAROSA).—17s. 9d. per lb.
GERANIOL.—6s. to 10s. per lb.
HELIOTROPINE.—4s. 6d. per lb.
ISO EUGENOL.—13s. per lb.
LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.
LINALYL ACETATE.—Ex Bois de Rose, 18s. 6d. per lb. Ex Shui Oil, 14s. 6d. per lb.
METHYL ANTHRANILATE.—8s. 6d. per lb.
METHYL BENZOATE.—4s. per lb.
MUSK KETONE.—35s. per lb.
MUSK XYLOL.—6s. 9d. per lb.
NEROLIN.—4s. 6d. per lb.
PHENYL ETHYL ACETATE.—11s. 6d. per lb.
PHENYL ETHYL ALCOHOL.—10s. per lb.
RHODINOL.—32s. 6d. per lb.
SAFROL.—1s. 6d. per lb.
TERPINEOL.—1s. 8d. per lb.
VANILLIN.—15s. 3d. to 16s. 6d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. 6d. per lb.
ANISE OIL.—2s. 9d. per lb.
BERGAMOT OIL.—26s. per lb.
BOURBON GERANIUM OIL.—14s. per lb.
CAMPHOR OIL.—9d. per lb.
CANANGA OIL, JAVA.—14s. 6d. per lb.
CINNAMON OIL LEAF.—6s. 9d. per lb.
CASSIA OIL, 80/85%.—6s. 9d. per lb.
CITRONELLA OIL.—Java, 2s. per lb., c.i.f. U.K. port. Ceylon, pure 1s. 9d. per lb.
CLOVE OIL.—5s. 6d. per lb.
EUCALYPTUS OIL, AUSTRALIAN.—2s. 1d. per lb.
LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 15s. 9d. per lb.
LEMON OIL.—9s. per lb.
LEMONGRASS OIL.—4s. per lb.
ORANGE OIL, SWEET.—12s. 9d. per lb.
OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 65s. per oz.
PALMA ROSA OIL.—11s. 9d. per lb.
PEPPERMINT OIL.—Wayne County, 14s. 9d. per lb.; Japanese, 7s. 3d. per lb.
PETITGRAIN.—7s. 6d. per lb. Sandalwood, Mysore, 26s. 6d. per lb., 90 95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, February 8, 1928.

BUSINESS this week has continued fair and with very few price changes. Prices still remain firm with an upward tendency. Export trade continues satisfactory.

General Chemicals

ACETONE.—Extremely firm at £64 to £66 per ton, according to quantity and position.

ACID ACETIC.—Unchanged at £37 to £38 per ton for standard 80% grade, with good demand.

ACID CITRIC.—Position is still very unsettled in the absence of any definite information from the makers. Spot supplies are practically unobtainable, price from 1s. 9d. per lb., less 5%, upwards.

ACID FORMIC.—Unchanged at £45 to £47 per ton, according to quantity.

ACID LACTIC.—Unchanged.

ACID TARTARIC.—The price is steadily advancing and is about 1s. 4d. per lb.

ALUMINA SULPHATE continues firm and demand good, at £5 15s. to £5 17s. 6d. per ton.

AMMONIUM CHLORIDE.—Unchanged.

BARIUM CHLORIDE is firm at £8 to £9 per ton, according to quantity and position.

COPPER SULPHATE.—Unchanged.

CREAM OF TARTAR.—Price is steadily advancing at £95 to £96 per ton.

EPSOM SALTS.—Unchanged.

FORMALDEHYDE.—Demand remains steady and price firm at about £41 per ton.

LEAD ACETATE.—Demand is not quite so active. Price unchanged at £42 per ton for white, with £1 less for brown.

LIME ACETATE.—Unchanged.

METHYL ACETONE is in fair demand at £55 per ton.

POTASH CHLORATE remains firm at £29 per ton with supplies short.

POTASH PERMANGANATE.—Demand is still improving. Price 5d. to 5¼d. per lb. for B.P. quality.

POTASH PRUSSIATE.—Demand remains fair at about £59 to £60 per ton.

SODA ACETATE is exceedingly short and price is steadily advancing.

SODA BICHROMATE.—Unchanged at British makers' prices.

SODA CHLORATE is still in short supply and price is firm at £26 10s. to £28 10s. per ton.

SODA NITRITE remains firm at £19 15s. to £20 10s. per ton, demand good.

SODA PRUSSIATE.—Unchanged at 4½d. to 5d. per lb., according to quantity.

Coal Tar Products

There is an improved inquiry for cresylics and carbolics, and a fair amount of business is passing. The spirit market, however, is still quiet.

90's BENZOL is unchanged, at about 1s. 3d. to 1s. 4d. per gallon, while the motor quality is quoted at 1s. 1d. to 1s. 2d. per gallon.

PURE BENZOL is worth about 1s. 5½d. to 1s. 6½d. per gallon, on rails.

CREOSOTE OIL remains firm at about 7½d. per gallon on rails in the north, while the price in London is about 8½d. per gallon.

CRESYLIC ACID.—There is more activity in this market, and prices are higher. The pale quality 97/99% is not generally being made, but the 98/100% quality is being quoted at 2s. 8d. per gallon, naked at works. The dark quality 95/97% has increased slightly in price, and as much as 2s. 2d. per gallon has been paid. This also is not very plentiful.

SOLVENT NAPHTHA remains very weak, and can be bought in the provinces at about 8d. per gallon.

HEAVY NAPHTHA is quoted at about 10d. per gallon on rails.

NAPHTHALENES remain rather scarce, the 74/76 quality being quoted at about £7 per ton, while the 76/78 quality is quoted at £8 to £8 10s. per ton.

PITCH is dull and quiet. To-day's nominal value is 70s. f.o.b., U.K. port.

Latest Oil Prices

LONDON, February 8.—LINSEED OIL quiet, and 5s. to 2s. 6d. per ton lower. Spot, ex mill, £28 10s.; February, £27 10s.; March-April, £28 2s. 6d.; May-August, £28 15s.; September-December, £29 12s. 6d. RAPE OIL quiet. Crude extracted, £42 10s.; technical refined, £44 10s., naked, ex wharf. COTTON OIL easy. Refined common edible, £40; Egyptian crude, £35; and deodorised, £42 per ton. TURPENTINE inactive. American, spot, 41s. 9d.; March-April, 42s. 9d.; May-June, 43s. 3d.; and July-December, 43s. 6d. per cwt.

HULL, February 8.—LINSEED OIL.—Spot and February, £28 5s.; March-April, £28 7s. 6d.; May-August, £28 10s.; September-December, £29 per ton, naked. COTTON OIL.—Bombay crude, £31 5s.; Egyptian crude (new), £33 5s.; edible refined, £37 10s.; technical, £35; deodorised, £39 10s. per ton, naked. PALM KERNEL OIL.—Crushed, 5½ per cent., £37 15s. per ton, naked. GROUNDNUT OIL.—Crushed extracted, £42 10s.; deodorised, £46 10s. per ton. SOYA OIL.—Extracted and crushed, £33; deodorised, £36 10s. per ton. RAPE OIL.—Crude extracted, £41; refined, £43 per ton. CASTOR OIL.—Pharmaceutical, 51s.; first, 46s.; second, 44s. COD OIL.—Spot, 31s. TURPENTINE, 43s. 6d. per cwt., net cash terms, ex mill.

Nitrogen Products

Export.—Since the last report buying has been active, especially in Spain, and the market is a little firmer at £9 16s. to £9 19s. per ton f.o.b. U.K. port in single bags. The Far East continues to show interest for prompt shipment. At present there is very little demand for forward positions.

Home.—On account of the waterlogged condition of a large part of the country the home demand remains quiet. It is expected, however, that a large demand will set in from the South of England. Apparently there is no prospect of change in prices announced by producers in August last.

Nitrate of Soda.—On account of competition among importers the re-sale price of the material has declined to £10 2s. 6d. to £10 4s. per ton. The demand from consuming centres is satisfactory. The Russian Government have recently purchased a further 12,000 tons of refined nitrate, making a total of 50,000 tons purchased since July last. Very little business has been transacted for 1928–9, as apparently there is considerable discrepancy between views of buyers and sellers for this period.

South Wales By-Products

THERE is no material change to report in South Wales by-product activities. There is only a moderate demand for most products and there appears to be a tendency to regard the present as a lull before a more active business period sets in. Pitch has weakened slightly and prices, delivered in South Wales, have dropped to a range of from 70s. to 75s. per ton. This is a decrease of about 2s. 6d.

Calcium Cyanamide 19 per Cent. N

A fairly keen demand is being experienced for this fertiliser for immediate and forward delivery. The February price to farmers for four-ton lots is £8 18s. per ton, carriage paid to any railway station in Great Britain.

Advance in Price of Camphor

AN advance of 2d. per lb. on the price of English refined camphor is notified by May and Baker, Ltd. They now quote: flowers at 3s. per lb., 28 lb. at 2s. 11d. per lb. Transparent tablets at usual differences. Special rates apply for quantities and contracts.

Advance in Price of Bismuth Salts

MAY AND BAKER, LTD., announce an advance in the prices of bismuth salts. The quantity prices are as under, and apply only for cash terms; smaller quantities would be charged extra.

	Under 1 cwt. s. d. per lb.	Not less than 1 cwt. s. d. per lb.
Bismuth Carbonate	11 7	11 4
,, Citrate	10 7	10 4
,, Nitrate Cryst.	6 10	6 7
,, Oxide	14 10	14 7
,, Salicylate	10 10	10 7
,, Subchloride	14 7	14 4
,, Subgallate	8 10	8 7
,, Subnitrate	9 10	9 7

A rebate of 3d. per lb. will be allowed on sales of not less than 2 cwt. (either for prompt delivery or on contract), provided delivery is completed or paid for, within three months.

Liquor Bismuthi P.B. in W. Qts., 1s. 1½d. per lb., 12 W. Qts., 1s. 0½d. per lb.; 36 W. Qts., 1s.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

Glasgow, February 8, 1928.

THE heavy chemical market during the past week has maintained the improved tendency which has been apparent for some little time past. Prices in one or two instances are rather firmer, but formaldehyde is a notable exception.

Industrial Chemicals

ACETONE, B.G.S.—£63 to £66 per ton, ex store, according to quantity.

ACID ACETIC, 98/100%.—Glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated or small flakes, £30 per ton; powdered £32 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—In moderate demand and quoted price unchanged at 7¼d. per lb., f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—In good demand but some parcels still available at round about 1s. 8d. per lb., less 5%, ex store.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID NITRIC.—80° quality, £24 10s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer from the continent at 3¼d. per lb., ex wharf. Spot material quoted 3½d. per lb., ex store. In better demand.

ACID SULPHURIC.—£3 7s. 6d. per ton, ex works, for 144° quality; £6 5s. per ton for 168° quality. Dearsenicated quality, 20s. per ton extra.

ACID TARTARIC, B.P. CRYSTALS.—Now quoted 1s. 3d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM, LUMP POTASH.—Rather higher quotations from the continent. Now quoted £8 7s. 6d. per ton, c.i.f. U.K. ports. Crystal meal on offer about the same figure. Lump quality on spot quoted £9 2s. 6d. per ton, ex store.

AMMONIA, ANHYDROUS.—Unchanged at about 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb. delivered, according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture unchanged at £23 to £24 per ton, ex stations. Continental on offer at £19 15s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £17 10s. per ton c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Quoted £19 15s. per ton, ex wharf, prompt despatch from mines. Spot material on offer at about £20 15s. per ton, ex store.

BARIUM CARBONATE, 98/100%.—English material on offer at £7 5s. per ton, ex store. Continental quoted £7 per ton, c.i.f. U.K. ports.

CALCIUM CHLORIDE, 98/100%.—Large white crystals quoted £6 17s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—British manufacturers' contract price to consumers, £6 12s. 6d. per ton, delivered, minimum four-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

BORAX.—English manufacturers' price unchanged as follows: granulated £19 10s. per ton; crystals, £20 per ton; powdered, £21 per ton. Odd parcels on offer of granulated from America at about £16 per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price, £4 15s. per ton to £5 5s. per ton, ex station, according to quantity and point of delivery. Continental material quoted £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports for export.

COPPER SULPHATE.—Continental material now much higher. Quoted £25 10s. per ton, c.i.f. U.K. ports. British material on offer at about the same price, ex store.

FORMALDEHYDE, 40%.—On offer at £37 5s. per ton, c.i.f. U.K. ports. Spot material quoted £39 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material rather higher. Now on offer a £30 10s. per ton, ex store.

LEAD, WHITE.—Quoted £31 per ton, ex store.

LEAD, ACETATE.—White crystals quoted £39 15s. per ton, c.i.f. U.K. ports; brown £38 10s. per ton, c.i.f. U.K. ports. Spot material on offer at £42 15s. per ton, ex store, spot delivery.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASSIUM BICHROMATE.—4¼d. per lb. delivered, minimum 4-ton lots. Under 4-ton lots, ½d. per lb. extra.

POTASSIUM CARBONATE, 96/98%.—Rather scarce for immediate delivery. Quoted £25 10s. per ton, ex wharf. Spot material about £26 10s. per ton, ex store.

POTASSIUM CHLORATE, 99/100%.—Powdered material offered from the Continent at £25 10s. per ton, c.i.f. U.K. ports. Crystals 30s. per ton more.

POTASSIUM NITRATE.—Rather cheaper quotations from the Continent. Now quoted £19 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Rather cheaper offers from the Continent. Spot material now obtainable at about 5½d. per lb., ex wharf

POTASSIUM PRUSSIATE (YELLOW).—Unchanged at about 6½d. per lb., ex store, spot delivery. Offered from the Continent at 6¾d. per lb.

SODA CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton; 70/72%, £13 12s. 6d. per ton, minimum 4-ton lots, carriage paid on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—In good demand and spot material scarce. Quoted £20 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised, £10 10s. per ton, ex quay or station. M.W. quality 30s. per ton less. No change in price for this year.

SODIUM BICHROMATE.—Quoted 3d. per lb., delivered buyers' works, minimum 4-ton lots. Under 4 and over 2-ton lots 3 1/16d. per lb.; under 2-ton lots, 3⅛d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, 27s. 6d. per ton extra.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots.

SODIUM NITRITE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—In moderate demand and price unchanged at about 4¼d. per lb., ex store. Offered for prompt shipment from the Continent at 4⅛d. per lb., ex wharf.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works, for unground quality, 52s. 6d. per ton delivered. Ground quality, 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices now as follows:—Solid, 60/62%, £9 per ton; broken, 60/62%, £10 per ton; crystals, 30/32%, £9 2s. 6d. per ton, delivered buyers' works on contract, minimum 4-ton lots. Special prices for some consumers. Spot material, 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; floristella, £9 10s. per ton; ground American, £9 5s. per ton, ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports. Powdered 20s. per ton extra.

ZINC SULPHATE.—Continental material quoted £11 15s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

I.G. Photographic Products in U.S.A.

THE Agfa-Ansco Photographic Co. (a new body concentrating I.G. Photographic interests in the United States, the formation of which was announced in THE CHEMICAL AGE recently) will have a capital of 7·35 million dollars, composed of 7,000,000 7 per cent. preference shares and 350,000 common shares. The I. G. has bought shares in the Grasselli Chemical Co. and the Sterling Products Co., in both of which it now has strong interests. The German Press comment on these activities indicates the belief that the I. G. is concentrating its United States interests, and that the Americans will regard them as a means of forcing United States chemical interests to come to an understanding with their European competitors. One result feared in Germany is that the United States may be more especially inclined towards a relationship with British interests.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, February 9, 1928.

There is marked steadiness in most sections of the chemical market here, and in some cases values are displaying a firmer tendency. The demand for heavy chemicals on the Manchester market remains fairly satisfactory considering the state of the cotton trade, although there is some complaint among sellers regarding the small size of most of the individual orders. Some inquiry is reported for shipment to the Colonies and the East, but on continental account the demand, on the whole, is poor.

Heavy Chemicals

There is a fair inquiry about for nitrite of soda and offers of this material keep steady in the neighbourhood of £19, with a little more than this being quoted in some cases. Saltcake is moving off in fairly satisfactory quantities at the reduced prices, makers' contract quotations being at £2 12s. 6d. per ton. There has been no change in the price position of caustic soda, and a quietly steady trade is being put through at from £13 7s. 6d. to £15 7s. 6d. per ton, according to quality. Phosphate of soda is attracting a limited amount of buying interest, and round £12 15s. per ton is being quoted here. Hyposulphite of soda is in rather slow request, but prices show little weakness, photographic crystals being on offer at about £16 5s. per ton, and commercial grade at £9 10s. For chlorate of soda the demand is only moderate just now, with current offers of this material at from 2⅞d. to 3d. per lb. Bichromate of soda is steady and in fair inquiry at 3⅛d. to 3¼d. per lb. Bicarbonate of soda continues to be quoted at about £10 10s. per ton, and a fairly good trade has been reported. Alkali keeps steady at the new level of £6 2s. 6d. per ton to home contract buyers, and the demand is on a moderate scale. A fair inquiry is about for bleaching powder, quotations for which are at round £7 per ton. Sulphide of sodium has been offered this week at about £10 5s. per ton for the 60–65 per cent. concentrated solid quality, and £8 7s. 6d. for the commercial, but the demand is slow. Prussiate of soda is well held at 4¼d. to 4½d. per lb.

Among the potash compounds chlorate is quoted here at round 3d. per lb., with a fair amount of interest shown. Carbonate of potash is in moderate demand and offers are being made at about £25 7s. 6d. per ton. For bichromate of potash inquiry is fairly active, and prices steady at up to 4¼d. per lb. Buying interest in caustic potash is about maintained and values are held at £33 5s. per ton for prompt delivery of one to five-ton lots. Yellow prussiate of potash meets with a quiet demand and quotations are at round 6½d. per lb. Permanganate of potash is moving off in limited quantities, but there has been little change in the price situation, the B.P. quality being offered at 5¼d. per lb., and the commercial at 4⅞d.

A steady demand for export and high values for the metal have had a firming influence on sulphate of copper, quotations for which are at £25 10s. to £26 per ton, f.o.b. Arsenic is again fractionally easier than at last report at £17 10s. per ton at the mines, for white powdered, Cornish makes, inquiry still being on the slow side. The tendency of the lead compounds is easy and the demand is slow; nitrate is on offer at round £37 5s. per ton and acetate at £40 10s. to £41 per ton for white and £39 10s. for brown. Acetate of lime is fairly steady and in moderate request at £16 5s. to £16 10s. per ton for grey and £10 10s. for brown.

Acids and Tar Products

Citric acid has registered a further advance on short supplies for prompt and early delivery, round 1s. 8¼d. per lb. being asked. Tartaric acid also is firmer at from 1s. 3¼d. to 1s. 3⅜d. per lb. Oxalic acid is in quietly steady demand, and values are about maintained at 3¼d. to 3½d. per lb. Acetic acid continues to attract a fair amount of attention and prices are steady at £66 to £67 per ton for glacial and £37 for the 80 per cent. commercial.

The tendency of pitch is still easy and uncertain and the demand is slow; export prices are at about £3 7s. 6d. per ton, f.o.b. Carbolic acid is slow and cheaper at 6½d. per lb. for crystals; crude material keeps fairly steady at 2s. 4d. per gallon as offers are not too plentiful. Creosote oil meets with a moderate demand at about 7¾d. per gallon. Solvent naphtha remains dull and weak at round 10½d. per gallon.

National Research on Vitamins

The report for 1926–27 of the Medical Research Council, just published, gives an account of the work of Dr. O. Rosenheim and Mr. T. A. Webster on the production of vitamin D from ergosterol by irradiation with ultra-violet light. Improvements in the method of irradiation will, it is hoped, make available a practically unlimited quantity of this vitamin, lack of which in diet is the cause of rickets and other physical deficiencies. Much work has also been done on the growth-promoting vitamin A, which has been found in the liver-fats of certain birds and animals in quantity far exceeding that in which it occurs in cod liver oil, the source hitherto used. Our national needs of vitamin A can therefore be met by the addition of vitamin A from liver-fat (of the sheep, calf, or ox) to the diet, either with butter or with margarine, or in other ways. The report states that the great majority of the population are suffering from a deficiency in vitamins A and D. From this subject the council turn to that of nutrition in general. They are, they state, attempting to frame, in co-operation with the agricultural interests, a chemo-geographical survey of the inorganic constituents of diet available in different parts of the country, and their relation to the distribution of disorders in health, human or animal.

"The Sport of Kings"

There was a very large audience in King George's Hall, London, on Friday, January 27, to witness the performance by the Benn Brothers' Dramatic Group of Ian Hay's comedy, "The Sport of Kings"—the tenth performance of the series. The humour of the piece was splendidly brought out, and the cast, which ranged from directors to messenger boys, was heartily congratulated on one of their greatest successes. Sir Ernest Benn, chairman of the company, who was accompanied by a large party of directors and friends, addressed a few words of welcome to the company before the curtain rose, and congratulated the group on their splendid success. Mr. W. J. Wrench was the producer, and the cast was as follows:—*Algernon Sprigge*, K. E. Hughes; *Sir Reginald Toothill, Bt.*, E. G. Benn; *A. Barmaid*, Miss D. M. Lewin; *A Newsboy*, L. Shepherd; *Dulcie Primrose*, Miss L. M. Storer; *Mrs. Purdie*, Miss D. M. Gough; *Amos Purdie, J.P.*, G. P. Grieve; *Bates*, H. W. Duck; *Joe Purdie*, W. L. Saunders; *Katie Purdie*, Miss M. M. Smith; *Lizzie*, Miss H. M. Ridley; *Jane*, Miss J. E. M. Lee; *Cook*, Miss E. M. Pritchard; *Albert*, W. E. Gannaway; *Panama Pete*, J. W. Mactavish; *Police Sergeant*, H. G. Fraser.

A Silver Wedding Dance

The staff of Benn Brothers, Ltd., and its associated companies and a large party of guests, numbering altogether about 500, were entertained by Sir Ernest and Lady Benn, in celebration of their recent silver wedding, at the Hotel Cecil on Monday evening. The company included a number of well-known authors, artists, journalists and publicity men. The Grand Hall, which was given up to dancing, presented a brilliant spectacle, and the gathering was regarded as one of the most successful in the history of the firm. The spot dance prizes were won by Mr. Gordon Robbins and Miss M. Smith, and by Mr. and Mrs. Marrable.

"Britain's Industrial Future"

The report of the Liberal Industrial Inquiry which was instituted as the outcome of the meetings of the Liberal Summer School, has now been issued under the title, *Britain's Industrial Future* (London: Ernest Benn, Ltd. Pp. 503 + xxiv. 2s. 6d.) Among the members of the Executive Committee of the Inquiry were Mr. W. T. Layton (chairman), formerly director of the National Federation of Iron and Steel Manufacturers; Mr. E. D. Simon (vice-chairman), chairman of Henry Simon, Ltd., and Simon Carves, Ltd., of Manchester, author of *The Smokeless City*, a former Lord Mayor of Manchester; and Mr. E. H. Gilpin, managing director of Baker Perkins, Ltd., chemical engineers, of Peterboro'. Among those who served on one or more of the special committees connected with the inquiry is Sir Josiah Stamp.

Company News

HORACE CORY AND CO.—A final dividend of 5 per cent. is announced, making 9 per cent. for the past year.

BABCOCK AND WILCOX.—The net profits of the German Babcock and Wilcox Co. last year amounted to £584,000, and a dividend of 9 per cent. is to be distributed.

RHODESIAN AND GENERAL ASBESTOS CO.—The directors announce an interim dividend of 10 per cent. further on account of the year ending March 31, 1928, payable on February 24 to all shareholders on the register on February 13, according to the capital amount paid up on their shares on the latter date.

CLOVER PAINT AND COMPOSITION CO.—The net profits for the period ended April 30 were £13,213, and £16,926 was brought forward. The sum of £20,000 was distributed as capital bonus at the end of 1926, and a dividend at the rate of 6 per cent. annum is proposed, adding £1,971 to the taxation reserve, carrying forward £2,431.

CELANESE CORPORATION OF AMERICA.—The directors have declared rateably to the holders of the 7 per cent. cumulative first participating preferred stock, a participating dividend of 10 per cent. on the profits of the company to December 31, 1927, after payment of all arrears and current dividends on the stock during 1927. This dividend is equivalent to one dollar per share.

SENTINEL WAGGON WORKS.—The report of the directors for the year ended December 31, 1927, states that the profit from trading, after meeting interest, directors' fees, income-tax, and all necessary charges, is £41,124, to which is added the balance brought forward of £1,058, making £42,182. There has been provided for depreciation of property, plant, machinery, etc., £15,107, and for amounts written off patents and expenses of new preference share issue £2,406, leaving £24,669. After allowing for the year's preference dividend, which requires £22,500, the sum of £2,169 is carried forward. The annual meeting will be held at 20, Iddesleigh House, Caxton Street, London, on February 14, at 11 a.m.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

PARAFFIN WAX.—The Roumanian Regie of State Monopolies is calling for tenders for the supply of 260,000 kgr. of paraffin wax. Tenders will be received up to 11 a.m. on February 16. Full particulars can be obtained from the Regie Monopolurilor Statului (Directia Exploatarii), Bucharest. (Reference B. 4188.)

PHARMACEUTICAL PRODUCTS AND DRUGS.—A commission agent in Barcelona desires to represent British manufacturers or exporters. (Reference No. 136.)

Electro-Thermal Production of Phosphoric Acid in France

PROCESSES of apparatus for the electro-thermal production of phosphoric acid which had been developed by the Federal Phosphorus Co., of Birmingham and Anniston, Alabama, are to be adopted by the Société des Phosphates Tunisiens, of Paris. The process is based upon electro-thermal smelting of phosphate rock, which produces directly a concentrated acid of high purity as compared with the old process of treating phosphate rock with sulphuric acid. The phosphoric acid so produced will be largely converted to ammonium phosphate for fertiliser purposes. The ammonia will be derived from the large Casale synthetic plant of Engrais Azote et Composée, which is controlled by the Tunisiens Company. In addition to the concentrated fertilisers, pure refined phosphoric acid and several pure salts, including monoammonium phosphate, diammonium phosphate, and sodium phosphates will also be produced and marketed. Engineering and process instruction on these products will also be supplied by the Federal Co. according to its developed processes.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us from official sources by Gee and Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks, and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to March 8, 1928.

"CELLOSOLVE."

484,787. Class 1. Solvents, being chemicals for use in manufactures. Carbide and Carbon Chemicals Corporation (a Corporation organised and existing under the laws of the State of New York, United States of America), 30, East Forty-second Street, New York, State of New York, United States of America; manufacturers. October 10, 1927.

"BAYKOLICKER."

485,852. Class 1. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. I.G. Farbenindustrie Aktiengesellschaft (a joint stock company organised under the laws of Germany), Mainzerlandstrasse 28, Frankfort-on-Main, Germany; manufacturers. November 14, 1927. Address for service in the United Kingdom is c/o Carpmaels and Ransford, 24, Southampton Buildings, London, W.C.2.

"PRAESTO."

485,949. Class 1. Chemical salts for the treatment and preservation of timber. The British Wood Impregnating Co., Ltd., 30, Norfolk Street, Strand, London, W.C.2; merchants. November 17, 1927.

"FEROBESTOS."

485,970. Class 1. Chemical substances used in manufactures, photography or philosophical research, and anti-corrosives. Ferodo, Ltd., Sovereign Mills, Hayfield Road, Chapel-en-le-Frith, Derbyshire; manufacturers. November 17, 1927. (To be associated, Sect. 24.)

Close of Hexyl Resorcinol Appeal

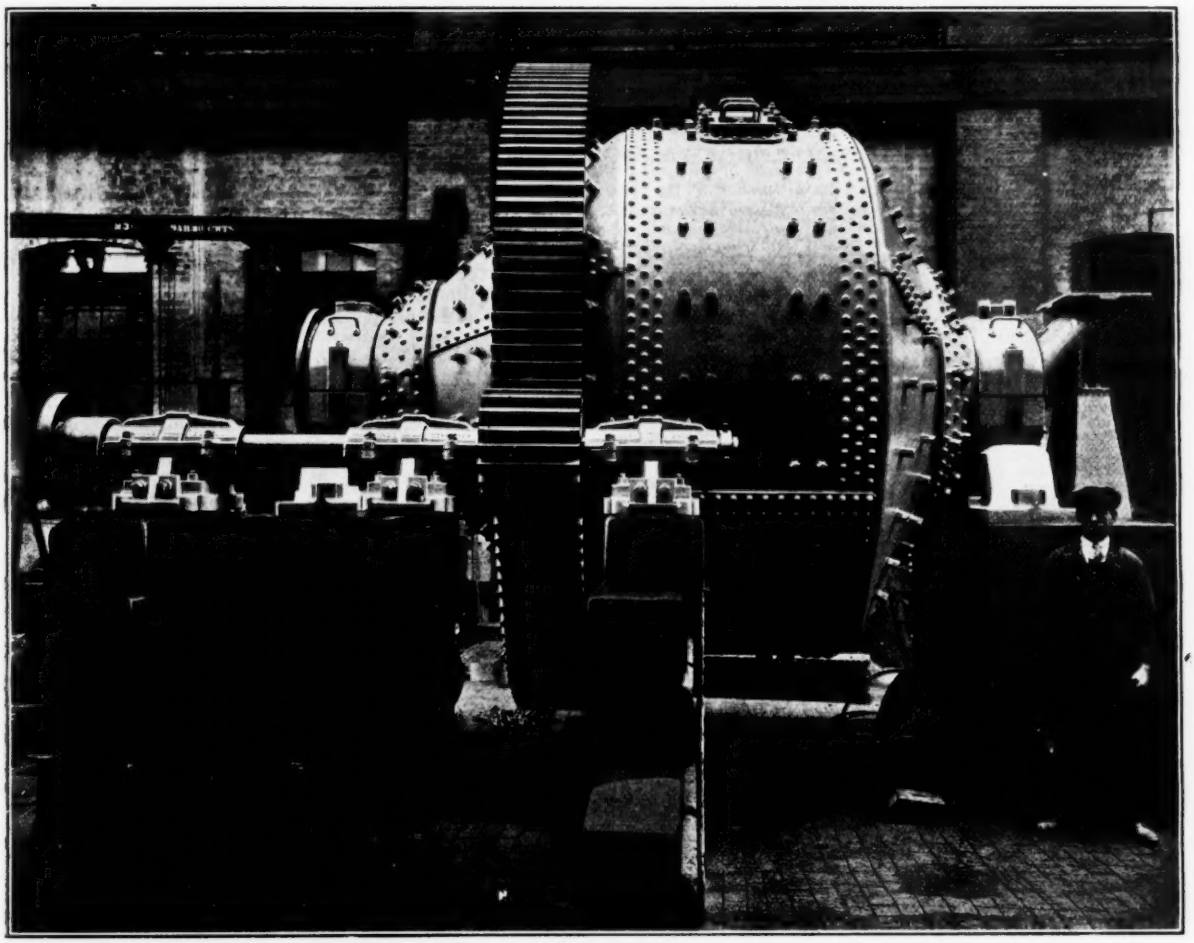
Court's Judgment Deferred

THE hearing of the appeal of Sharpe and Dohme Inc. from the judgment of Mr. Justice Astbury in their action for alleged infringement against Boot's Pure Drug Co., Ltd., was concluded on Monday, the nineteenth day of the hearing, when the Master of the Rolls intimated that the Court would take time to consider its judgment. The previous Thursday afternoon, Friday and Monday, were occupied by Sir Arthur Colefax in his reply, in the course of which he admitted that though alkyl resorcinols might have many other than therapeutic uses he could not, on his construction of the patent, deem a person an infringer who used, say, hexyl resorcinol for one or more of these other purposes. He argued further that, although claim 1 made no reference to purification, and all the subsequent process claims had such reference, the patent was only drawn to the pure bodies. He also admitted to the Court that if claim 3 (which dealt only with the reduction process) were held invalid on any ground, claim 9, which claimed hexyl resorcinol made by any of claims 1 to 4, would be bad; although later he contended that the invalidity of claim 9 would arise, not consequentially upon the invalidity of claim 3, but because claim 9 would have the same vice as had invalidated claim 3.

A Liquid Checking Meter

A USEFUL checking device for the measuring of liquids is to be found in the new Patent Liquid Meter, manufactured by the B. & R. Manufacturing Co., of Winchester House, Victoria Square, Birmingham. This meter is specially constructed for use with liquid chemicals and checking them in and out of tanks or similar receptacles, at rates varying from one-fortieth of a gallon up to 20,000 gallons per hour. Constructed in chemical-resisting alloys it can be supplied in imperial or metric measures and forms a definite positive measure accurate to within 1 per cent. either way.

A special model can be supplied for dealing with oil or inflammable liquids.



This 10 ft. All Steel Hardinge Mill embodies improvements which have been the result of an extensive survey amongst operating plants.

This large diameter Mill has a larger capacity per square foot than any other type of mill.

Four of these Mills have recently been built for English Chemical Works.

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Hardinge Mills

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

PHILLI MIRANO (1926), LTD., 39-49, Groton Road, Earlsfield, manufacturing chemists. (C.C., 11/2/28.) £18 7s. 3d. October 27.

Receiverships

RECORD STAINS, INKS AND DRESSING CO. (1925), LTD. (R., 11/2/28.) W. M. Oddie, incorporated accountant, of Springstone House, Ossett, was appointed receiver and manager on January 24, 1928, under powers contained in first mortgage debenture dated April 11, 1927.

CELLACTITE WORKS, LTD. (R., 11/2/28.). J. H. Stephens was appointed receiver and manager on January 28 for the first debenture holders.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

BATHITE, LTD., Bath, chemical manufacturers. (M., 11/2/28.) Registered January 26, series of debentures, for £2,000, present issue £1,000; general charge. *Nil. December 31, 1926.

London Gazette, &c.

Company Winding Up

STANDARD SOAP CO., LTD. (C.W.U., 11/2/28.) Winding-up order, January 30.

Companies Winding Up Voluntarily

CENTURY OIL REFINING CO., LTD. (C.W.U.V., 11/2/28.) By special resolution, January 16, confirmed, January 30, H. J. Purves appointed as liquidator. Meeting of creditors at the offices of R. W. Cooper and Sons, 5, Victoria Street, Westminster, Monday, February 20, at 2.30 p.m.

INDUSTRIAL PRODUCTS, LTD. (C.W.U.V., 11/2/28.) Alexander Murdoch, C.A., of 53, Bothwell Street, Glasgow, appointed as liquidator, January 30. Meeting of creditors, at the chambers of M'Lay, M'Alister and M'Gibbon, C.A., 53, Bothwell Street, Glasgow, on Thursday, February 16, at 12 noon.

LONDON PHOSPHATE SYNDICATE, LTD. (C.W.U.V., 11/2/28.) By extraordinary resolution, January 27. Meeting of creditors at the offices of L. S. Snell, the liquidator, 8-11, Pavilion Buildings, Brighton, on Tuesday, February 14, at 3 p.m. (All creditors will be paid in full.)

MILLBROOK PAINTS, LTD. (C.W.U.V., 11/2/28.) By extraordinary resolution, January 31.

New Companies Registered

ASHLEY AND DUMVILLE, LTD., 42, Ordsall Lane, Salford. Registered February 1. Nom. capital, £10,000 in £1 shares. To acquire the business now carried on by A. Smith at Ordsall Lane, Salford, Lancs, and to carry on the business of coal, coke and general fuel exporters, importers, merchants, agents and general shippers, distillers and manufacturers of and dealers in all products and by-products of coal, chemicals, etc. Directors: A. Smith and J. Smith.

THE BRITISH AND GENERAL RADIUM CORPORATION, LTD. Registered as a "public" company on February 1, with a nominal capital of £10,000 in £1 shares. To acquire, develop, turn to account and deal with lands, buildings, mines, minerals, mining rights and property in Great Britain or elsewhere, to carry on the business of miners, mine owners, preparers for market of and dealers in radium, pitchblende and other ores, metals, minerals, stones, etc. Directors: Dr. I. Straus, 19, Sanct Jacob Street, Basle, Switzerland; S. T. Harman and J. C. B. Richardson.

COLLEDGE ROY AND CO., LTD., Brighton Street, Red Bank, Manchester.—Registered February 4. Nom. capital, £1,000 in £1 shares. To carry on the business of manufacturers and refiners of and dealers in all kinds of oils, fats, greases, waxes, soap, sugar and sugar products, starch and starch products, pharmaceutical preparations, chemicals and industrial and other preparations and articles, etc. Directors: H. D. Gotts, J. W. Gotts.

MINERAL AND REFRACTORY PRODUCTS, LTD. Registered February 1. Nom. capital, £2,000 in £1 shares. To buy, sell, import, export and deal in stone, sand, metals, oils, ore, refractory materials and mineral or chemical substances of all kinds, etc. Directors: L. A. Watkin, "Woodlands," Beech Road, Norbury, Surrey; W. Thiemann.

PERAMA, LTD., 15, Wilson Street, E.C.2. Registered February 7. Nom. capital, £500 in £1 shares. Importers and exporters of and dealers in essential oils, synthetic perfumes and chemicals of all kinds, etc. Directors: H. Pfeiffer, Mrs. E. E. Pfeiffer.

The Reduction of Production Costs

THE "idle time" of machinery, the total period during which the plant is stationary, or inefficient through preventable causes, constitutes a considerable charge on production, and may turn profit into loss. Any device which registers the motion of machinery in its relation to time and so discloses preventable "idle time" or reveals lack of balance in concurrent stages of production, will speedily justify its first cost. The "Work Meter," an instrument which fulfils the functions referred to in the preceding paragraph, is an ingenious and inexpensive electrical recording mechanism, which registers continuously by means of a "time-space" graph the performance of any machine to which it is connected. The chart shows at any moment whether the machine is working at full output or less, while the complete chart for the past day, week or month, gives the production efficiency of machine, namely the ratios:—Actual output/possible output, and likewise idle time/total running time.

The "Work Meter" records the amount of work done, time taken to do work, time when work was done, all stoppages and their duration, speeds at which different parts of a single machine are working, speeds at which different machines are working, and any defects such as excessive belt slip. In dyeworks the meter will record the specific times of immersion and in machinery having the handling of materials it will record the performance of cranes and similar conveyors. The instrument, which is manufactured for Work Meters, Ltd., by the Automatic Telephone Manufacturing Co., Ltd., is distributed by Lewenz and Wilkinson, Ltd., 25, Victoria Street, London, S.W.1.

Benn Brothers' Other Journals

THE CABINET MAKER.—Textiles in Furnishing; Notes from the Home Journals; Supplementary Shop Windows.

THE ELECTRICIAN.—The Post Office Railway; Indian Railway Electrification; National Register Developments.

THE FRUIT GROWER.—Grafting of Fruit Trees; "Tar Distillates and 'Scab,'" by E. M. Bear; Standardised Marketing.

GARDENING ILLUSTRATED.—The Begonia Gloire de Lorraine; Snowdrop Time; Lilium Regalum.

THE GAS WORLD.—"The Gas Industry's Contribution to Public Health," by F. W. Goodenough; Thos. Hardie on "The Position and Prospects of the Gas Industry"; "Organisation in Theory and Practice," by J. G. Davidson.

THE HARDWARE TRADE JOURNAL.—Paint Trade Problems: How to Sell Paint; Ironmongers and Hire Purchase; Domestic Boilers Litigation.

THE TIMBER TRADES JOURNAL.—Timber Position of the Bordeaux District; Home-grown Timber Supplies of the Future; Empire Timber; Saw Mill: Inventions and Patents.